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VOLUME 6 NUMBER 2 SEPTEMBER 1988



ON THE COVER:
Finally... accelerator
boards that make your
PC really fly. Illustration
by Stephen Turk.

FEATURES

UPGRADING TO AN 80286 OR 80386 CPU *by Steve Gilliland* **18**

Time was, your PC had all the power you needed. But times have changed. You don't need a new computer - enhance your PC with an accelerator board.

NON-PROGRAMMED REPORTS IN dBASE: PART 2 *by Joseph Comanda* **27**

In part two of this two-part series, find out how to create sophisticated reports in minutes.

DO IT WITH STYLE! *by Jim Spickard* **36**

Microsoft Word style sheets give your documents a standardized appearance, and creating them is easier than you think.

SCRIPTWRITING WITH WORDSTAR 4 *by Robert J. Sawyer* **44**

Writing screenplays is a text-formatting nightmare. WordStar 4.0's macros make this process a dream come true.

SCREEN SMARTS **50**

by Jim Spickard

The world of video displays is complex and confusing. This month's Buyer's Guide helps by explaining the different standards and the various options available.

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BUY NEW, MAKE DO—OR UPGRADE

"Don't look back," the saying goes. "Something might be gaining on you."

Personal computer users can certainly relate—the technology forges relentlessly ahead, and no matter how new your system is, it seems as if there's always something newer about to come thundering past you.

Virtually no one can—or even wants to—buy a new computer every time new models are introduced, but it's hard not to covet the speed and power they offer. Fortunately, there are other alternatives besides buying new or making do. For owners of 8088-based Kaypro PCs, one such alternative is accelerator boards that let you put an 80286 or 80386 CPU in your machine.

In this issue, Steve Gilliland looks at two of these boards, explaining what it takes to make the upgrade and just what you can expect to gain from it.

Also in this issue:

- If your computing needs have changed—you have a new-found need for color graphics capabilities, for example—and you're thinking of moving up to a new monitor, see "How to Buy A Monitor," by Jim Spickard. This article continues Spickard's series of practical buyers' guides with a look at monitors and video adapters. Find

out what various monitors and adapters offer and use the helpful checklists to decide exactly what you need and what to look for when you go shopping.

- If you've ever tried your hand at scriptwriting, you know that the format is rigid and fairly complex, and that typing a script can be tedious and time consuming. Using WordStar 4.0's Shorthand feature to create macros, however, you can largely automate the process. In "Scriptwriting with WordStar 4," Robert Sawyer explains how to customize WordStar for scriptwriting and presents macros he devised for numbered shots, stage directions, dialogue, and more.
- Using style sheets to format documents created with Microsoft Word lets you shift formats quickly and standardize output. Jim Spickard tells you how to create style sheets, step by step, in "Fast Formatting with Microsoft Word." He explains how to set up all aspects of a document's format, from margins to underlining, provides two sample style sheets—one for letters and one for longer documents—and offers

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tips and points to consider when setting up style sheets of your own.

- Creating reports in dBASE III is something that generally requires programming, but you can go farther without programming than you might expect. In part two of a two-part series on "Non-Programmed Reports in dBASE," Joseph Comanda explains how to stretch the limits of the report generator, coaxing it beyond conventional columnar reports.
- CP/M readers can welcome a new columnist. Ted Silveira has turned over the reins of "CP/M Only" to Ed Quillen, a past contributor to PROFILES. This month, Quillen looks at Bradford, a new (!) CP/M public domain print formatting program. In future issues, he'll take a fresh look at various categories of public domain software for CP/M users, and he welcomes your tips and suggestions for other column topics.

Add to this our regular PROFILES extras (Buyer's Hotline, Q & A, DATELINE, and product reviews). We are sure each of you will find something of interest to catch your eye.

Each month, we hope that the material presented answers a nagging question, provides problem-solving inspiration, or in some other way makes your computing easier and more productive. We welcome your comments and ideas. ■

Guyn Price

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NOT INNOCENT

I read Brock N. Meeks' article "An Innocent Abroad" ("Life at 300 Baud," June 1988) with a combination of impatience and amusement. First, I am very impatient with people who knowingly travel to foreign countries and then act surprised to find out that they are foreign! Second, I am amused that anyone would let Mr. Meeks leave California, without proper travel preparations.

Now a few questions for Mr. Meeks:

1. Why is it so astonishing to find that Germans would have German-speaking telephone operators and German language prompts? Isn't it fairly obvious that German is spoken in Germany?

2. Why is it so astonishing to find out that other countries have different kinds of telephone equipment? If you needed an adapter for your shaver, why shouldn't you anticipate a problem with your acoustical modem?

3. Why did you expect telephone connectors in Germany to be the same as in the U.S.? This is hilarious in context: The second-most powerful country in the world that measures in inches and feet is Liberia! As a traveler from the world's most unstandardized industrial country, you don't have much room to criticize others.

4. Why would anyone who considers himself a mature adult undertake international travel without the slightest preparation?

I submit that Mr. Meeks was indeed abroad, but not innocent. The miracle of his entire adventure is that someone so obstinately ignorant of the world around him could actually manage to return to the U.S. without major incident.

I suppose he's going skiing in New Zealand in January to recuperate.

Mr. Meeks' trials and tribulations were completely his own fault, and he richly deserved the misery he imposed upon himself through his inadequate preparation and deliberate ignorance. It is just punishment for his crime of defaming America by his pushiness and willful stupidity abroad.

Kenneth W. Collins
Annandale, Virginia

Perhaps you missed Meeks' own self-effacing opening comments ("My naivete was surpassed only by my arrogance") and thereby misinterpreted the tone and the purpose of the column. He was even more surprised at himself than you are—his point was that he was ill-informed and ill-prepared, and his purpose was to save others from such gaffes. Rest assured, Brock is no "Ugly American."

MORE AUTOMATION FOR CP/M

Regarding "Automating CP/M for the Occasional User" (June 1988), there is another way to automate CP/M thoughtfully provided by Digital Research and bundled with your Kaypro. Insert your CP/M disk into drive A and insert the one you want to automate in drive B. Now do the following:

At the A> prompt type COPY. When the menu appears, type the letter O.

When the next menu appears, type S. You should see the following message:

"Push RETURN to start, any other key to abort. Please enter an initial command line (name). This command line is not checked to ensure that it is correct. This allows greater flexibility for experienced users who understand that this is a CCP command line. If you push RETURN only, you will get the normal A> prompt. = = >"

You type (to follow the [published] example)

SUBMIT B:WSRUN<RETURN>

When the next menu appears, you can type E to exit or, if you want to treat more disks, perhaps with different commands, you can repeat the above procedure.

Gil Josephson
Silver Spring, Maryland

NOT QUITE PERFECT UMLAUTS

I've been looking for a way to get Perfect Writer to overprint umlauts, accents, etc. for years, and I thought O.B. Hardison, Jr.'s article, "Foreign Language Accents with Perfect Writer" (December 1987) was going to be just what the doctor ordered. But, unfortunately, my printers seem to be allergic to his method, so I'm still looking for the solution for my Kaypro II and two printers: an Okidata Microliner 92 dot matrix and a Silver-Reed 550 daisy wheel.

The problem is that neither printer recognizes the backspace command Hardison prescribes: ^H (decimal 8, hexadecimal 08); the Silver-Reed just stops for an instant and beeps at me and then prints the accent, umlaut, etc., after the letter it's supposed to be printed over—e.g., *scho'n*, *co'te*. The Okidata doesn't even beep, it just ignores the instruction and prints it the same way as the Silver-Reed. Both use the Perfect Writer format commands (Hardison suggests using the italics command), and SmartKey/SmartPrint gets the same unsatisfactory result.

The fascinating (read frustrating) thing is that WordStar enables both printers to overprint using an embedded ^H! It works in an intriguing way: the printer first prints all the text to the end of the line. Then, without a carriage return, it goes back and puts the accents or umlauts over just the appropriate letters, skipping everything else.

In my writing I use a lot of foreign words and I need to use Perfect Writer rather than WordStar for other important reasons, so this is really vital. Can anyone out there figure this one out? Thanks.

Michael Charry
Riverdale, New York

Not claiming any Perfect Writer experts on the PROFILES staff, we are throwing this one to your fellow Perfect Writer users. Any correspondence will be published in this column. Any takers?

CREATE YOUR OWN MENU

I recently purchased and installed a 20-megabyte hard drive. Since my wife uses a hard drive system at work with LeMenu installed, she thought it would be nice to have the program at home also. Being a fairly advanced user, I saw no need for it. Instead I created my own menu system, which your readers might be interested in, especially since it's free.

The first task (after all your subdirectories have been created and programs copied) is to create the menu screen in the root directory. Mine is called MENU.TXT (Ed. note: see figure 1).

Now the fun begins. First add the lines

```

*****
*
*   Enter your choice and press the ENTER key
*
*           <W>ordPerfect
*           <T>urbo Pascal
*           <P>rocomm
*           <G>ames
*           <C>alendar
*           <B>udget
*           <R>ight Hand Man
*
*****

```

FIGURE 1

cls		type menu.txt	/print menu to screen
type menu.txt			

to your AUTOEXEC.BAT file. This will print the menu to your screen each time you turn on your computer. Then for each of the marked letters (i.e., < W> , < T> , etc.), a batch file is created using these letters (i.e., w.bat, t.bat, etc.). Here is my w.bat file. I have added comments for ease of understanding.

echo off	/don't show commands
path c:\;c:\wp	/set path to start program from sub-directory. (This is not necessary if you are saving your data files in same directory as your program files.)
cd\wp\wpdat	/change drive to sub-directory
wp	/start program
cd\	/return to root directory when program is finished
cls	/clear screen
echo off	/don't show commands

Now whenever I want to run WordPerfect, I press w<CR> while in the root directory and the program loads and begins. When I am done, I am returned to the root directory, the menu is printed on the screen, and I can run another program or turn off the machine. It takes a little thought to set this system up, but once done it works like a charm. Of course, what I'm missing from a program like LeMenu is the DOS facilities; but I don't really need them and the rest of the family never uses them. Everyone's happy and we saved money.

James Harrington
No city, state

Besides helping them to save money, this exercise will give beginners good practice with AUTOEXEC.BAT and batch files. For more information on these two "mysteries," see William Murdick's two-part article "Taking the Mystery Out of MS-DOS" in the June and July 1988 issues of PROFILES. Our thanks to Mr. Harrington.

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BY MARSHALL L. MOSELEY

REVISIONIST THEORY

I work in an office in which several people sometimes work on the same document. With so many versions of a single document floating around, it's easy to work on the wrong one or accidentally delete the right one, thinking it's an earlier version. Is there a program available that tracks documents through several revisions?

Yes, there is, but the word processor you have now may do the job. WordStar 4.0 and 5.0, WordPerfect 5.0, and Microsoft Word 4.0 all offer commenting features that can allow groups of users to keep track of multiple changes made to any document. Each person who works on the document adds a non-printing comment at the beginning of the document that includes revision number, time, and

date and any messages or other pertinent information for the next person in the chain. This lets you see at a glance which version you're working on and who has already revised the document.

WordStar 4.0 uses a dot command for commented text. Just start a line with .IG, and any subsequent text will appear only on screen. It will not be printed out and will not affect page breaks. Text typed after .IG does not word wrap, so you must end each line by pressing Enter. Also, boldfaced or underlined characters appear as standard text. That means that if you have WordStar's print commands hidden (^OD), you can't tell if text within a comment is underlined or not. Earlier versions of WordStar don't support .IG, so start a comment line with two dots (..) instead.

WordPerfect 5.0 has a "Document

Comment" feature, which allows you to create a box on screen and place your comments inside it. Words typed in a comment box automatically wrap at the end of a line and can be underlined or boldfaced just like regular text. There is no limit on the number of comment boxes allowed in a file. Comments can be changed to text, and vice versa. Microsoft Word 4.0 has a similar feature called "redlining."

Interestingly enough, WordPerfect, the most popular and best selling word processor available, does not allow you to place the time and date in a comment automatically. WordStar does.

Your needs may exceed the commenting features available in these word processors, in which case you should look at a product called "For Comment," from Broderbund Software. For Comment

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Each reviewer can read through a document, inserting comments and changing text wherever necessary (though the original document does not change). After multiple revisions, the text is returned to the author. For Comment collates the reviewers' annotations so that they can be inserted into the document. When changes are made, a back-up copy of the original is automatically generated. For Comment will read ASCII, WordStar, WordPerfect, and MultiMate files directly. A customized version of For Comment for Microsoft Word 4.0 is also available.

THE CASE OF THE MISSING HARD DRIVE

Help! I own a 10 Mhz Kaypro 286i with a 40-megabyte hard disk, divided into C and D drives. After deleting various files for which (I thought) I had no use, I rebooted my computer and the D drive was gone! What happened, and what do I do to fix this?

You probably deleted a special file in the root directory of your hard disk. To get your D drive back you must recreate it.

In early 1987, Kaypro changed the standard hard drive in a 286i from a 32-megabyte (MB) model to a 40 MB model. With this change they ran into an annoying limitation: MS-DOS will not recognize a drive over 32 MB in size. For that reason, the 40 MB drive in your 286i is divided into two 20 MB units, the C and the D drives.

To allow access to the second drive, Kaypro included hard disk formatting and partitioning software called SpeedStor, from Storage Dimensions Inc. SpeedStor enables MS-DOS to address the D drive by using a special program called a *device driver*. A device is a discrete part of your computing system that

sends or receives information. Floppy disk drives are devices, as are printer ports and hard disks. A device driver is a program that establishes the software link between a device and the operating system. The driver lets the operating system "see" the device.

To enable a second hard disk, the SpeedStor device driver command must be placed in a special file called CONFIG.SYS (for SYStem CONFIGuration). CONFIG.SYS is an ASCII text file that contains commands the computer reads and follows on startup. CONFIG.SYS commands can determine how much memory is used in accessing disk data, for example, or how many files the computer can open at one time.

CONFIG.SYS is also used to run device drivers, installing new devices into the operating system. In your case, CONFIG.SYS contained the command to run the SpeedStor device driver. You probably deleted CONFIG.SYS, so when the computer re-booted, drive D was not installed in the system. That second hard drive is inaccessible until you run the device driver that connects it to MS-DOS. You need to create a new configuration file containing the command to invoke the SpeedStor device driver.

The name of the SpeedStor device driver is HARDRIVE.SYS. To make the D drive reappear you need to create an ASCII text file named CONFIG.SYS using WordStar in non-document mode. Make the first line of the file read **DEVICE=HARDRIVE.SYS**. Then, on separate lines, add the commands **FILES=20** and **BUFFERS=20**. (The first is necessary to run WordStar 4.0, while the second speeds disk access slightly.) Before saving the file, take a look at the manuals for any other programs you might have. Determine if they require any special CONFIG.SYS commands, and if they do, insert those commands. Save the file and place it in the root directory of the C drive.

Next, list the files in the root directory to see if HARDRIVE.SYS is also missing. If it is, copy the original file from your SpeedStor master disk to the root directory of the C drive. Make sure CONFIG.SYS and HARDRIVE.SYS are in the



"Dear Genifer.."

Q: "dBASE has me stuck at the dot prompt and I'm coming unglued! Can you save me?"

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- On The Edge

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root directory. Then reboot the computer, and the D drive will be restored.

WHAT'S "D" STORY?

I use the program D.COM with my Kaypro 10 to display lists of files onscreen. Is there any way to make it display files in other user areas?

Yes. Follow the file specification with the characters "\$UVS" and the files in every user area on the disk that match the specifier will be displayed. For example, if you were looking for all files ending in TXT, you would type `D *TXT $UVS` and press Return.

MOVING BIG FILES

I use my Kaypro 386, AutoCAD software, and a Hewlett Packard plotter to do computer-aided design. I sometimes have to

put plot files on floppy disks to transfer them to another computer. The problem is, lately I've been creating files that are too large to fit on one disk. Any suggestions?

Two cost-effective solutions to your problem are the MS-DOS BACKUP command and a shareware program called PKARC.

BACKUP is a utility program included with MS-DOS. It allows you to place one large file on two or more disks. You can BACKUP from a hard disk to floppy disks, from floppy to floppy, or from hard disk to hard disk (if you have two in the system). BACKUP isn't good for much; there are far better programs for preserving data. But in this instance you have a specific need that BACKUP meets. Besides, the price is right.

PKARC from PKWare compresses files to about half their normal size. It uses one of three compression methods—crunching, squeezing, or squashing—depending on which method is the most efficient for the file being addressed. PKARC is particularly effective with ASCII text files, which it compresses by at least 50 percent. Data and binary files undergo a smaller reduction.

Once you compress a file with PKARC, you must use its sister program, PKXARC, to decompress it. PKARC and PKXARC are available on bulletin boards and from user groups throughout the United States. To find the Kaypro User Group nearest you, call (800)-4-KAYPRO and have your zip code ready.

WHAT'S IN A NAME?

I'm using dBASE III to print out a list of names—the last name followed by a comma, then the first name. I'm using the LIST command, and no matter what I do I always get two or so inches of space between the first and last names, and I have no idea how to place a comma in there.

This question highlights dBASE III's string handling abilities. Assume that the two fields we're working with are called FNAME and LNAME. Each can hold up to 20 characters, but the names inside them are usually 10 to 12 characters long.

The standard command to list these fields would be: `LIST FNAME,LNAME`. That produces something like this:

JENKINS	ANDREW
TOMPKINS	CHRISTOPHER
WELLEN	NINA

The comma between FNAME and LNAME is what creates that two-inch gap you mentioned. To eliminate the gap between fields, separate the field names in the command with a plus sign (+) instead of a comma: `LIST (FNAME)+(LNAME)`.

After doing this you will find there is still a gap. That's because there are blank spaces in each field after the name. In the first example above, JENKINS only takes up seven characters of a 20-character field, but all 20 characters, including the blanks, are printed. Use the RTRIM (right trim) function in order to eliminate trailing blank characters in a field name. The new command reads: `LIST RTRIM(FNAME)+', '+RTRIM(LNAME)`. This will produce:

JENKINSANDREW
TOMPKINSCHRISTOPHER
WELLENNINA

The gap is gone, but now the first and last names run together. We can delimit them by telling dBASE to insert certain characters directly onto the screen: `LIST RTRIM(FNAME)+', '+RTRIM(LNAME)`.

This tells dBASE to print a comma and a space between field names. The result is:

JENKINS, ANDREW
TOMPKINS, CHRISTOPHER
WELLEN, NINA

RTRIM is just one of dBASE's string handling functions. There are others that allow you to format text in many different ways. You can pull a string of characters out of the middle of a field using the SUBSTR function, for example, or convert upper case letters to lower case using the UPPER function. If you master string handling functions, you will be well on your way to becoming a dBASE expert. ■



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Borland Turbo Pascal 4.0 \$69

Norton Utilities 4.0 \$69

PC Tools Deluxe 4.2 \$59

Mace Utilities \$69

MISCELLANEOUS

Western Digital FOX controller \$99

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K101 keyboard for PC or 286 \$75

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PRINTERS & SUPPLIES

PSCS sells and supports C.Itoh, Diconix, JUKI, NEC, Okidata, and Star printers. We carry both branded and generic supplies for these printers. We make a special effort to carry the ribbons and printwheels for the JUKI 6100 and NEC 360 e.l.f. letter quality printers, because these are the printers sold by KAYPRO.

Space and ever-changing prices prevent us from listing all of the printers and accessories here. Call our toll-free number, 1-800-446-6211 for current printer and supply pricing information.

THE TECH CORNER

If you are planning to upgrade your PC's video the following descriptions may be helpful. Since KAYPRO has used various video cards in their PC's, deciding what you need to upgrade can be confusing. Call if you need help.

1. MDA (Monochrome Display Adapter) IBM original monochrome. Very readable but only has block graphics.

2. CGA (Color Graphics Adapter) Provides graphics in color or B&W but text is poorly formed.

3. Hercules Corp.'s enhancement of MDA with 720 x 340 graphics became a standard which bears their name.

4. EGA (Enhanced Graphics Adapter) IBM's standard announced with the AT series of computers.

5. VGA (Video Graphic Array) IBM's latest standard increases vertical resolution and color combinations but does not improve horizontal resolution.

6. Auto-scanning monitors can do all of the above as well as higher resolutions such as 800 by 600 but conform to no standard.

Prices are good through Sept. However, we reserve the right to change prices, specifications, and availability as the market dictates. Orders shipped UPS or USPS. Pay by check, COD, MC, or VISA. Minimum shipping and handling charge \$2.50.

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SPEED UP YOUR SYSTEM WITH SOFTWARE

BY MARSHALL L. MOSELEY

Early in my computer education I bought into the idea that "faster is better." If an 8 MHz machine is good, I reasoned, then a 16 MHz machine is wonderful. That's not necessarily so. Time and experience have taught me that *machine* speed isn't everything. Upgrading doesn't necessarily mean installing a faster clock; nor does it require a hard disk whose speed and price rival that of an F-16 fighter jet. You can enhance your computer by using *software* products that are available for free or at a low cost.

This month I'll tell you how to upgrade your computer by using public domain and low-priced commercial software to replace or augment different parts of your computing system. Methods for enhancing the entire keyboard will be explained. You'll learn how to improve MS-DOS' command line editing functions, how to get better use of the function keys, and how to replace the MS-DOS DIR and TYPE commands with more powerful programs.

KEYBOARD ENHANCERS

For beginners, the standard MS-DOS keyboard is adequate. You can type at a steady rate, view spreadsheets and databases, and there are few hassles. Once your typing speed increases, however, or you develop the need to move quickly through lots of data, you will run into the limitations inherent in the keyboard.

First, there is the *repeat key delay*. If a key on a Kaypro MS-DOS computer is depressed for more than 0.5 seconds, the computer causes the key to repeat just as if it had been repeatedly typed. That 0.5 second interval is the repeat key delay. The second limitation is the *typematic rate*, which is the rate at which a character repeats. With the standard keyboard, the typematic rate is 10 characters per second (CPS). This rate also applies to cursor movement, because pressing and holding one of the arrow keys down (to move the cursor) is exactly the same as pressing a letter or number key. Both the standard repeat key delay and typematic rate are too slow at times.

Two inexpensive programs that solve

these problems are Repeat Performance, from WordPerfect Corporation, and Vkeyrate, from Golden Bow Systems. Repeat Performance lets you set the repeat key delay to any value between 5 and .10 seconds and allows for a typematic rate anywhere between 11 and 1,000 CPS. Vkeyrate is less powerful, allowing for a repeat key delay of .25, .5, or .75 seconds and a typematic rate of 10, 20 or 30 CPS. The disparity in performance between the two is acceptable when you realize that Repeat Performance is a stand-alone program retailing for \$59, while Vkeyrate is just one of three programs included with Golden Bow's disk caching program Vcache, which also costs \$59.

*With the
repeat key delay
decreased and the typematic
rate increased,
you can zip through
documents.*

With the repeat key delay decreased and the typematic rate increased, you can zip through documents, spreadsheets, and databases very rapidly. An enhanced keyboard makes work sessions smoother and faster.

COMMAND EDITING

Every MS-DOS computer has function keys numbered F1 through F10 (or F1 through F12 for the newer models). When you type a command and press Enter, the command is placed in a special section of memory called the template. By employing the function keys, the template can be displayed, edited, and used as the next command. For example, if the previously typed command was DIR, repeatedly tapping F1 will re-display the command one letter at a time; to re-display it all at once press F3. To execute the template as a command, just press Enter again. This lets you

re-type a long command with one or two key-strokes instead of 10 or 20.

Unfortunately, the function keys' command line editing powers are rudimentary. The template holds only one command, the last one entered, and you have the choice only of displaying the command all at once or one character at a time. Also, you can't view the template while placing new characters in it, which means you have to know exactly what is in the template to edit it.

The public domain program DOSEDIT solves these problems handily. DOSEDIT is RAM resident, and once installed in memory it turns your arrow keys and the Ins key into potent tools for command line editing.

Every time you execute a command, DOSEDIT remembers it—not just the last one, but the one before that and the one before that, up to 15 commands. You can move through the list by tapping the up and down arrow keys. Once a command is displayed, the left and right arrow keys let you move the cursor around within it. You can write over any characters, or you can tap Ins and whatever you type will be inserted into the command.

DOSEDIT is available from bulletin boards throughout the United States: through Kaypro's bulletin board Kaypro OnLine (619-259-4437; 300/1200/2400 BPS; 8N1); through your local Kaypro users' group, or through your local PC-compatible users' group. To find the Kaypro users' group near you call 1-800-4-KAYPRO and have your zip code ready. To find a PC-compatible users' group, contact your Kaypro dealer and ask if he or she knows of one.

IMPROVED FUNCTIONING

Just because the function keys are ill-suited to command line editing doesn't mean they're worthless. In fact, the program FKEY makes them downright useful.

FKEY, from Hungry Tiger Software, is a public domain program that assigns a string of characters to function keys 1 through 10. You could assign DIR and then Enter to F1 for example, then whenever you tapped F1 you would see a listing of the current directory. FKEY

allows you to create a definition file to hold the character strings that go with each key; when the program runs, it automatically loads the definition file. I've used FKEY to program my function keys in pairs. F1 takes me to the WRITE directory, for example, while F2 runs WordStar. F3 goes to the PCPLUS directory, and F4 runs Procomm Plus.

If you assign your most commonly used change-directory commands to the function keys, you'll cut way down on tedious typing. With the help of FKEY, you can fly through complex directory structures with ease.

A DIRECT REPLACEMENT

The MS-DOS directory listing command, DIR, displays a list of files on screen. It is the first command everyone learns and, when used with wildcards, is fairly helpful. Its limitations are severe, however. DIR can't display a sorted directory without the help of another MS-DOS utility, SORT, nor can it display a file list in over three columns, which limits the number of files that appear on screen at one time.

One alternative to DIR is a program that came with your computer, D.COM. D automatically pauses when the screen is full, and it displays file sizes in kilobytes rather than bytes. But D does not allow for sorting by date or file size, and it displays file names in only two columns. Its default colors of bright yellow and blue are a bit too garish for my tastes, too, and they cannot easily be changed.

HDIR (for *Hot Directory*), by Tony Overfield and Robert Woeger, is a shareware directory listing program that is everything DIR and D should have been. HDIR allows you to display file lists in one-, two-, four-, or six-column format and lets you sort files by name, extension, size, or date. On color monitors, HDIR assigns a specific color to a specific file type, so a quick glance at the screen tells you how many EXE, BAT, COM or DBF files are present. HDIR's documentation provides clear instructions on how to change those colors. To use HDIR, place it in the same directory with FORMAT, CHKDSK, and your other MS-DOS utilities. If you have

a dual-floppy system, just keep a copy of HDIR on every disk you have; at 4K that's not a big problem. HDIR is one program in a series called the Xanadu Utilities, and it's available through the same sources as DOSEDIT, which are listed above.

*Assign
commonly used
change-directory commands
to function keys to
cut down on tedious
typing*

NOT YOUR TYPE

One of the most useful but infuriating MS-DOS commands is TYPE, which is used to view ASCII text files. (ASCII is the text format most widely used in the microcomputer world. Though many word processors can't read each other's file formats, almost all of them can read ASCII.) The problem with TYPE is that it has only one speed: too darned fast. Issue a TYPE command and the file specified will scroll onto the screen and right off again, without stopping. You can pause the display, but it requires a quick eye to read something as it appears on screen and even quicker reflexes to stop it before it scrolls off.

LIST, by Vernon D. Buerg, is a wonderful text file viewing and printing program. At 8K it is one of the smallest utilities around, yet it packs more power than most programs twice its size. Using LIST you can display any ASCII or WordStar text file on screen. You can use the standard 25-line display, or if you have an EGA monitor, you can switch to a 43-line display. You can move forward and backward a page or a line at a time, mark blocks of text onscreen and write them to a separate file, scan the file for any character string, go directly to a specified line number, split the screen and view two separate files, exit to MS-DOS and return to the point in the text

file where you left, and print the file to any printer that understands ASCII codes (almost every printer ever built).

Like HDIR, LIST goes into a directory with all the other MS-DOS utilities. LIST is available in the same places as DOSEDIT and HDIR.

CONCLUSION

Upgrading is more than just buying new and better equipment. Efficient upgrading involves using all available resources to enhance your computer's performance. This month we've looked at a few general utilities, but there are thousands more out there. Some of them will undoubtedly make your Kaypro a more efficient tool. ■

QUICK REFERENCE SUMMARY

Product: Repeat Performance
Manufacturer: WordPerfect Corporation
1555 North Technology Way
Orem, Utah 84057
Phone: (801) 227-4020
Sugg. List Price: \$59
Hotline Number: 755-53

Product: Vkeyrate, part of Vcache
Manufacturer: Golden Bow Systems
2870 Fifth Ave., Ste. 201
San Diego, CA 92103
Phone: (800) 284-3269
Sugg. List Price: \$59.95
Hotline Number: 756-53

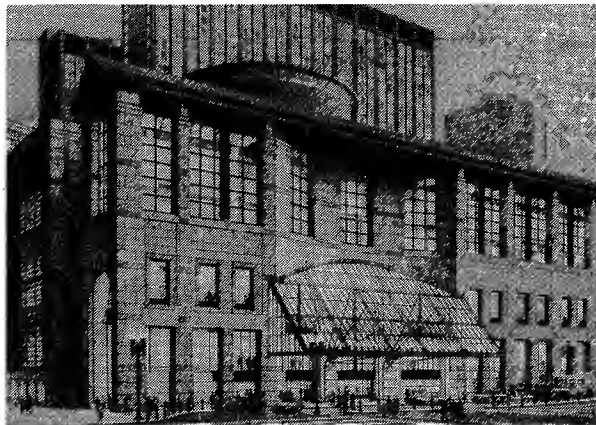
Product: DOSEDIT
Manufacturer: Unknown
Sugg. List Price: Public Domain (Free)

Product: FKEY
Manufacturer: Hungry Tiger Software
2 Cole Road
Haydenville, MA
Phone: (413) 268-3077
Sugg. List Price: Public Domain (Free)

Product: HDIR, The Xanadu Utilities
Manufacturer: Tony Overfield and Robert Woeger
Address not available
Phone: Not Available
Sugg. List Price: \$25 (Shareware)

Product: LIST
Manufacturer: Vernon D. Buerg
456 Lakeshire
Daly City, CA 94015
Phone: Not Available
Sugg. List Price: Free for non-commercial use.

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DATELINE

BY BROCK N. MECKS

NEWS FROM THE FIELD

VOCAL PROOFREADER

Seal Beach, CA—Now both of you—you and your computer—can proofread any text on the screen. A new electronic proofreading scheme called Monologue, developed by CSSL Inc., replaces the traditional method of proofreading in which one person reads aloud while the other follows the text checking for errors. Monologue cuts out the human element by vocalizing whatever material you select from your computer screen.

Monologue is a combination of hardware and software. The hardware consists of an adapter the size of a deck of cards, with parallel port connectors on both ends. It plugs into the parallel port of your computer; your printer cable plugs into the remaining connector. A pair of supplied headphones plugs into the adaptor, too. The Monologue software includes a small "speech engine" routine, but the text is handled via a digital-to-analog converter that converts the digital signals received from your computer to an analog signal your ears can hear. The program will accept up to three screens of text in its buffer. On com-

mand, the program begins to read back the selected text using English phonetic sounds.

The program works with all kinds of word processors. In addition, Monologue can read any program in text mode, including dBASE and Lotus 1-2-3.

Complicated number strings such as \$174.32 are read as one hundred seventy-four dollars and thirty-two cents. Nonprintable characters are not read. The system will also read punctuation, such as left and right parentheses, commas, and periods. You can adjust the system's rate of speech, select gender (male or female voice) and tone/pitch (baritone or whistle alto). These adjustments can even be made while Monologue is "reading" along. Blind users can hit the F9 key and anything on the screen will be read to them.

The program requires DOS 2.1 or higher, 256K of RAM, and a parallel port, and it costs \$189.95.

Charge It

Troy, MI—Laptop computers are great for convenience, but they can also be a pain. Why? Few have adequate bat-

tery power to handle an intensive work session. However, a new type of battery is promising to at least double the time your laptop can survive away from that wall socket.

The new nickel hydride batteries can go twice as long as traditional nickel cadmium batteries without a recharge. The Ovonic Battery Company of Troy, Michigan, is one of several companies working on the new battery for commercial use.

Researchers report that the batteries last almost twice as long as regular NiCads, but left unused they lose their charge faster. However, Ovonic states that the new batteries do not have to be fully discharged before you can recharge them.

And according to a spokesman for Ovonic, the nickel hydride battery "does not employ toxic materials" such as cadmium, making them environmentally sound.

Industry sources say the batteries will cost "about the same as NiCads on an energy basis." Translation: the new batteries, while providing up to twice the staying power, might also cost twice as much per unit.

The new technology appears to have been accepted: industry sources

claim that Compaq Computers laid out a cool \$5 million for a million nickel hydride storage batteries. The two companies involved will neither confirm nor deny the reports.

SEEING IS BELIEVING

Spend an hour or so with a desktop publishing program and you soon find out that "what you see" on the screen is seldom "what you get" on the page. And unless you're ready to pony up the money for a full-page display monitor, you just have to live with trial-and-error printouts. Until now. High-resolution display controllers for desktop publishing systems will soon be available from LaserMaster Corporation.

Dateline saw a demonstration of LaserMaster's prototype cards, and the advantages were obvious: the cards offer true "what-you-see-on-the-screen-is-what-you-get-on-the-printout" performance.

"The screen looks just like the printed page," said Lawrence J. Lukis, executive vice president for engineering. LaserMaster is able to accomplish this feat onscreen by scaling down the fonts.

The type can then be rotated and angled to the preferred setting before it ever makes it to a printout.

A spokesman for the Sybold Group, an industry research firm that covers the desktop publishing field, said "the [desktop publishing] industry's waited a long time for this type of device."

"We're the only ones developing display controllers with PCs," said Lukis. He wouldn't comment, however, on when the company would have a the display controllers ready for the mass market.

No Tolerance

Wichita, KS—"It happened again!" The screams provoked when DOS disk errors wipe out valuable work can be heard from New York to San Francisco—but not so much in Wichita, Kansas. In Wichita, a company called Newer Technology says it has the just the thing to soothe those fried nerves. It's a RAM-resident program called No-Fault.

Newer Technology claims that No-Fault allows you to operate in a "fault-tolerant" environment. No-Fault lets you set up a secondary disk that automatically mirrors your primary disk. Whatever is written to the primary disk is also written to secondary disk at regular intervals.

The product is one of the first RAM-resident utility programs to handle this type of task. No-Fault works with any DOS-compatible disk

device: hard disks, floppy disk, even RAM disks (and how many times have you forgotten to save your RAM disk? I thought so.)

No-Fault corrects bad-sector errors on the fly, restores from either the primary or secondary disk, and automatically switches over to secondary in case of a failure on the primary. The program has no apparent effect on keyboard or other operations.

Computer Chips Track Bees

Oak Ridge, TN—Computer chips promise to be a key factor in a story that sounds like the plot of a low-budget science fiction movie: mutant bees threaten human lives and a \$20 billion industry.

The key players in this real-life drama are a major U.S. defense contractor, a computer chip, and a swarming mass of "killer" bees. And the whole story hangs on the ability of scientists to glue computer chips to the bees. Plans are to use the chips to monitor the mating and foraging habits of the aggressive bees.

Engineers for Martin Marietta, maker of the MX missile, have developed a tiny tracking computer chip powered by nine solar cells. The device will transmit an infrared signal that Marietta engineers can pick up from a ground station up to a mile away. The chip weighs "about

as much as a grain of salt," a company spokesperson said. The chips will be attached to the bellies of captured bees, he said.

The experiment hinges on the ability to keep the computer chip in place. "We had to first establish that we could glue the chip to the bee; then we had to see if the bee could fly with the chip on its mid-section," said Ed Aebischer, spokesperson for the Oak Ridge, TN, laboratory where the chip was developed. It turned out that the glue does stick, and the bees can fly. Aebischer said current plans call for the tiny solar-powered transmitters to be glued to hundreds of thousands of bees. A working killer bee transmitter is expected to be put in the field by next year.

The bees, descendants of African queen bees, have been officially linked to the deaths of 350 people, according to the U.S. Agricultural Research Service. The bees are projected to cross the Texas border in the next few years.

The Martin Marietta scientists hope that the tracking device will enable the U.S. Department of Agriculture to control the pests without the massive use of pesticides. The killer bees are an economic threat because they do not cross-breed and they are hostile to the honey bee, which is vital to domestic agriculture.

CONTINUED ON PAGE 16

WHATEVER HAPPENED TO TELE-COMMUTING?

Telecommuting, like a lot of other futurist predictions—among them personal helicopters and mail delivered by guided missile—has largely remained just that: an unfulfilled prediction.

You remember telecommuting. Its basic premise: substitute telecommunications for car pools and freeway gridlock. The advocates of telecommuting saw workers "commuting" to work over the phone lines via computers and modems. Employees would save gas, time and money; corporate managers would revel in a workforce of dedicated, happy, "work-from-home" employees.

In 1986, research firms such as Link Resources predicted that by 1990 some 15 million Americans would be firing up a modem, not a late-model Ford, when it was time to head to work. Such predictions proved overly optimistic.

Department of Commerce figures show that more than 20 million Americans worked from a home office in 1987, but the difference between work from home and work at home is a critical one. Those who work from home could be called the "true" tele-

COMMENTARY

commuters; they have a formal, employer/employee arrangement with a company or corporation and spend their regular working hours in front of a computer at home.

Those who work at home are they entrepreneurs. They're not employed by someone else, but have computerized in-home offices of their own.

Although the trend toward "true" telecommuting is small, the trend toward working at a home office is booming. Evidence: the telecommuting industry has generated only two newsletters in the last four years; the home office market has launched three full-blown magazines in the last 18 months.

Point of View

Some 350 to 500 companies today have instituted formal work-from-home programs, but these programs seem to be languishing. According to "experts" quoted in *The Wall Street Journal* and *The New York Times*, real telecommuting has been declining because corporations are too "impatient" to try to fit the concept into large, complex organizations. But the experts may have overlooked the trend toward computerized in-home offices, which has become a small-business

workstyle/lifestyle. Small businesses are better able to "risk" the time investment of telecommuting than are big-business managers laboring under industrial-era work structures and policies.

The Numbers Don't Lie

A survey taken by Link Resources outlined the state of telecommuting in today's business world. The key issues:

- The number of homeworkers who said they had regular, formal work-from-home arrangements with their employers: 4.9 million;
- The number of homeworkers who said they work at home during the daytime between the hours of 8:00 a.m. and 5:00 p.m.: 2.0 million;
- The number of homeworkers who rely substantially on modems to do their work at home, part- or full-time: 870,000.

An interesting footnote to the Link study: Only 70 percent of the "formal" homeworkers (the ones in the first category above) are actually salaried corporate employees. The rest are self-employed contract or contingent workers. Of the 3.4 million salaried employees, more than 2.5 million were based at outside work sites with less than 100 employees. The

upshot: 2.5-plus million people work out of sites that amount to small or mid-sized companies in their own right. This compares to a total of only 108,000 people found in work sites of more than 1,000 people.

The Best Measurement

The best measure of telecommuting is the number of corporate homeworkers with formal employer/employee agreements who also claim to work at home between the hours of 8:00 a.m. and 5:00 p.m. This number, according to Link, works out to just over 860,000 people, or about 25.2 percent of all formal homeworkers. And if you stick a qualifier on this group—those required to use a modem to fall within the definition of telecommuting—the number of salaried, daytime, modem-using corporate types plummets to about 27,000.

Small Doesn't Mean Dead

Although the formal corporate figures appear to suggest that telecommuting among Fortune 500 companies is a fantasy, this is not quite the case. Large companies such as Travelers Insurance Group, JC Penney, Pacific Bell, Blue

Cross-Blue Shield, and the state government of California continue to experiment with telecommuting programs. For example, California's civil service has around 200 telecommuters on its payroll, Pacific Bell nods at the figure 1,000, and JC Penney claims just over 100 telecommuters. Travelers won't release any figures, citing potential competitive advantages from a work force of home-based "knowledge workers."

No matter how telecommuting is defined, it's clear that it has not developed into the money-saving, morale-boosting corporate arrangement once predicted. And while the small business environment is thriving (small businesses have accounted for some 10 million new jobs since 1980, while corporate downsizing has led to a net decline of 2.8 million large-company employees during the same period) salaried employees from large corporations make up only a fraction of the work-from-home market. Telecommuting, it seems, is simply a subset of an booming demographic trend: work-at-home small businesspeople using the technology of telecommunications to its fullest. ■

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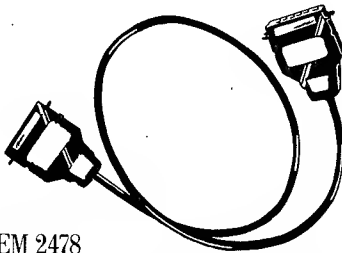
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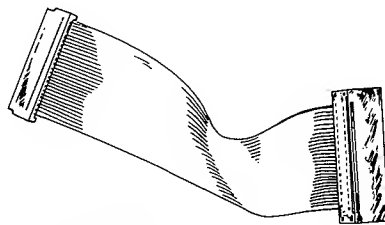
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DATELINE

CONTINUED FROM PAGE 14

Mr. Fix-It

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According to a new report from the New York consulting firm Frost & Sullivan, repairing old computers is turning into a gold mine for enterprising engineers and "garage" hobbyists.

"Most third-party maintenance companies are the result of manufacturing engineers and technicians with an entrepreneurial bent who saw opportunities to provide services in many cases more responsive and superior to those provided by manufacturers," the 295-page report stated.

"Although the competition is getting stiffer, there are still entrepreneurial fortunes to be made in this business," it said. The market for service is \$1.7 billion this year and is expected to grow to \$2.6 billion by 1992, according to the report. The market will grow for several reasons: even the most reliable computer can break, old computers are being kept in service, and resale of computers is very low.

Unlike some of the less-expensive computer peripherals, such as early dot-matrix printers, which are often "throwaways" due to high repair costs, computers themselves have a low scrap rate, according to the report. "Many computers and data terminals still in daily operation go back to the 1970s or even earlier," contend analysts for Frost & Sullivan.

More than 200 companies provide service. The five largest are Sorbus, GE Computer Service, TRW, Interlogic Trace, and Control Data, which account for 50 percent of the market.

These entrepreneurs have used several strategies for success. "This is an industry built on opportunity and the ability to recognize it," concludes the report.

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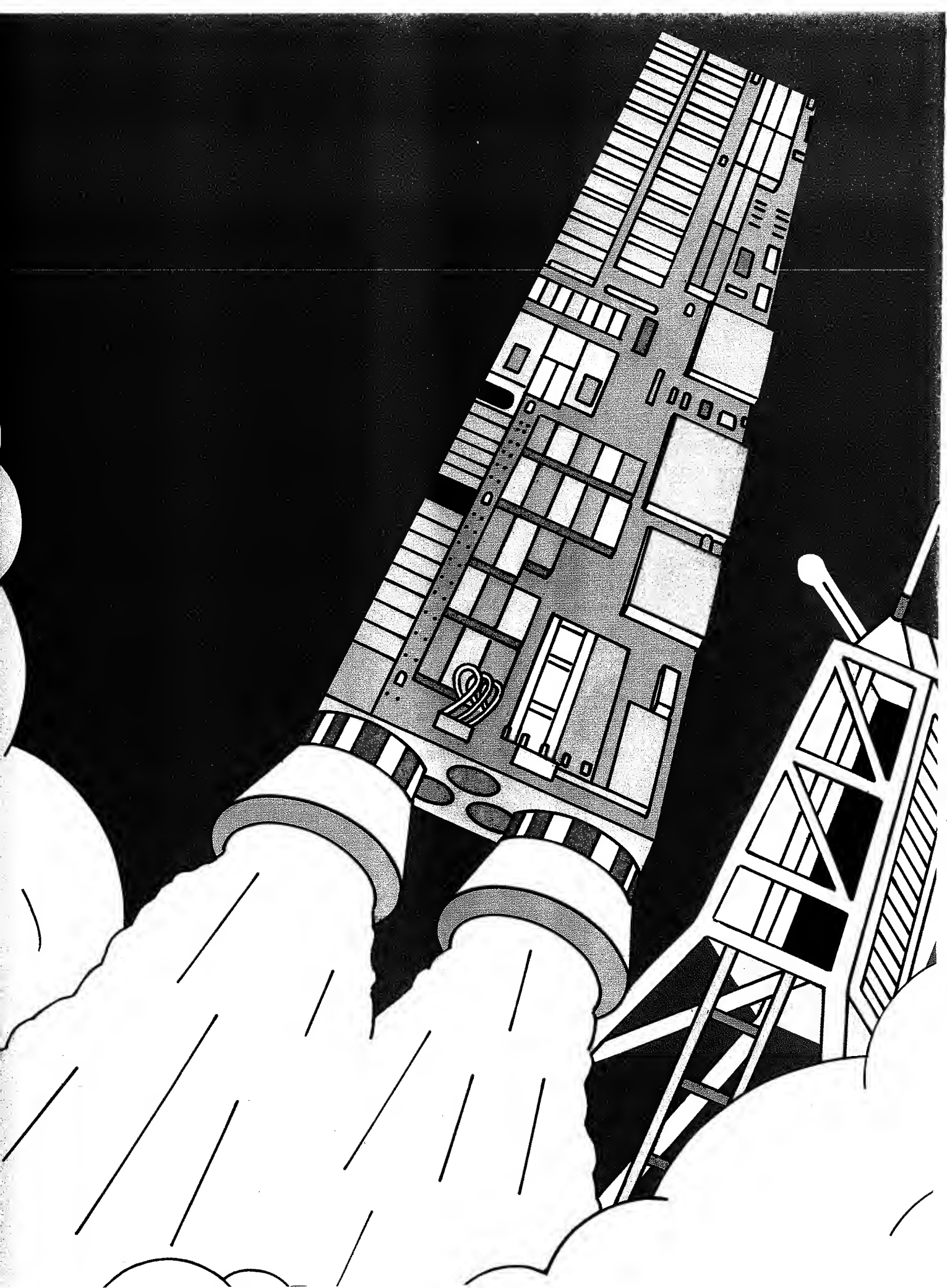
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UPGRADING TO AN 80286 OR 80386 CPU

Accelerator boards make it possible for PC owners

BY STEVE GILLILAND

A little nervous about your Kaypro PC computer system? You think it might be time to upgrade, but you're befuddled by the "new generation" of 80286 and 80386 computers—and skittish about their price tags? Reluctant to scrap thousands of dollars worth of hardware and software you've only recently finished housetraining? You're in good company. Millions of computer users share your misgivings.

Fortunately, there are solid alternatives to junking your present Kaypro system—and your investment of money and tears—even if it's an "old" and "slow" 8088. This article examines one of those alternatives: "accelerator boards" that you can add to your Kaypro PC to give it the capabilities of the newer computers.

An accelerator board is an expansion board for PC-type computers that fits into a standard expansion slot. The board contains either an 80286 or an 80386 microprocessor, both of which are more powerful than the 8088 microprocessor already in the computer. When operating, the processor on the accelerator board supplants the older, slower 8088. These boards also come with faster clock crystals, and some come with their own memory, while others use the memory inside the PC.

Accelerator boards are relatively easy to install; all you have to do is place them in an expansion slot, connect a few cables, and you're off. With some models you also have to remove the original microprocessor from the computer.

These boards can enhance your system immensely, giving your computer more than twice the power it has now. There are limitations, however. Most accelerator boards will not turn your Kaypro PC into a true-blue AT compatible or 386 machine (one that does is discussed below), and because of limitations in the design of the PC, they make limited use of AT-compatible hardware and software. That's why most accelerator boards will not run OS/2, the new 80286-based, multi-tasking operating system from Microsoft.

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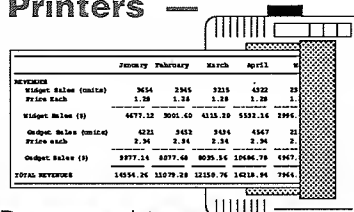
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Output Sales (\$)	9877.14	8077.40	8059.56	10606.78
TOTAL NETWORKS	14054.26	13079.28	12159.76	14219.96

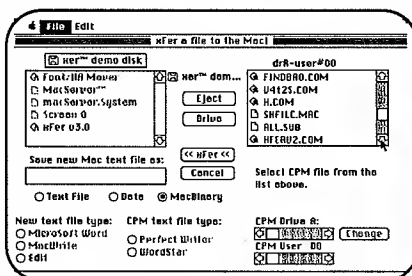
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But for the most part, these boards will turn an average speed PC into a number-crunching, word processing rocket. We tested three boards—two using the 80286 microprocessor and one that tries to upgrade the 8088 PC to a 80386. The 80286 boards were chosen because their manufacturers guaranteed they would work in Kaypro 8088 computers. This was not the case with any 80386 board we could find, but one was included because we felt that the 80386 category deserved to be investigated.

*Because
the newer processors
handle data
in larger increments,
they are faster.*

We'll share the results of the tests and show you how to do two comparison tests of add-on boards, all with a view to helping you make a more informed decision on which way to jump. But first we'll examine the ways in which accelerator boards improve system performance.

WHAT ACCELERATOR BOARDS DO

There are two basic things you can do to improve your computer's performance: change processors and clock crystals to increase system speed and power, and increase the amount and/or speed of memory the computer can use. Accelerator boards let you do one or both. Let's consider each in turn.

Processors. The microprocessor is a single chip that shuffles data inside your computer, arranging and rearranging it according to instructions provided by the software program. The original Kaypro PC operates using a microprocessor from Intel Corporation called the 8088. The 8088 moves data around eight bits at a time. (A bit is a binary digit, either 1 or 0; it is the smallest unit of information your computer manipulates; 8-bit units are called bytes.)

Intel makes two other processors that are used in Kaypro Computers: the 80286 and the 80386. The 80286 in the Kaypro 286i and 286 processes data 16 bits at a time, and the 80386 used in the Kaypro 386 does it 32 bits at a time. To communicate with memory or hardware devices, these processors must sometimes switch to 8- or 16-bit processing, but *internally* they operate as stated.

Because the newer processors handle data in larger increments, they are faster. You can also change the speed at which data is transferred, making them faster still.

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Memory. Computer memory consists of memory chips, a series of integrated circuits that hold data both prior to and after its use by the microprocessor. It's sort of a staging area where data is temporarily stored. The more memory you have, the more powerful your computer is, because it can manipulate more information.

Memory is measured in bytes, kilobytes, and megabytes. A byte is a string of eight bits. A kilobyte is 1,024 bytes, or about as much information as one printed page. A megabyte is 1,024 kilobytes, or about a million bytes.

The 8088 can recognize one megabyte of memory. Of this,

384K is used by various hardware components and is unavailable to the user, leaving 640K available for MS-DOS and your programs.

The 80286 recognizes 16 megabytes of RAM, the 80386 one gigabyte (a billion bytes). But because 80286- and 80386-based computers use MS-DOS, they too are limited to using 640K. In either of these computers, any memory above 640K is called "extended" memory. There are a few programs that use extended memory in restricted ways, but for the most part extended memory is inaccessible under MS-DOS.

Accelerator boards can improve memory performance in PCs in two ways. First, some come with their own memory, and the memory chips are newer and faster—much faster than those used in a standard PC. (But even boards that use your PC's memory can do so in more efficient ways, as will be explained in a moment.)

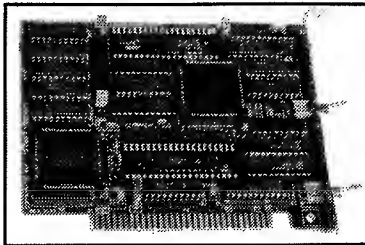
Second, in some cases these boards allow you to install extended memory and effectively use it to the degree possible under MS-DOS. (Most accelerator boards do not allow access to any extended memory that is not on the board itself, because that would require memory access through the PC expansion slots, and these expansion slots can transmit only eight bits at a time. But there are exceptions, including the Kaypro 286 board, as you will see.)

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MEMORY MANAGEMENT

As noted above, with an accelerator board installed, clock speed doubles or even quadruples. This is a problem if the accelerator board uses the PC's memory, because that memory is designed to operate at the old clock speed. The new, fast processor meets the old, slow memory, and conflicts occur. Let's look at why.

The rate at which memory chips are accessed is measured in one-billionths of a second, or nanoseconds. The most often used memory chips have 250, 200, 150, 120, 100 and 80 nanosecond access times. The Kaypro PC uses 150 or 120 nanosecond chips.

A microprocessor operating with a fast clock crystal requires fast memory chips, and 150-nanosecond chips won't do the job under normal circumstances. The obvious solution is to replace the old memory with newer, faster memory. That's the method one of the boards we tested uses, and quite a few other boards do, too. Unfortunately it also raises the price of the board. So instead, some accelerator boards use the memory already in the computer by using a combination of two techniques: wait states and caching.

Remember that one computer instruction can be executed for every four clock ticks. With fast enough memory, the computer could execute another instruction immediately. But memory can't always keep up with processor speed, so some computers make the processor wait one extra clock tick before beginning its next execution cycle. That extra tick is called a "wait state." Two ticks are two wait states, three ticks are three wait states, and so on.

Accelerator boards that use old PC memory are so fast that they must insert as many as four wait states while waiting for memory access. This slows things down, of course, but the faster

clock speed and the 80286 or 80386 processor on the board still ensure faster operation and a significant speed-up regardless of wait states.

Memory caching also helps. Accelerator boards that don't have a full complement of 640K of memory usually have at least four, six, or eight kilobytes of memory called a "cache." When data is read from or written to standard memory, it is also stored in the cache. If the next instruction calls for that data, it is fetched from the cache instead of standard memory. This speeds things up immensely because cache memory is usually very fast—at least 80 nanoseconds—and can be accessed 16 bits at a time. The other 286 board we looked at takes this approach to memory management.

WE DO SOME TESTING

For this article, we attempted to test three accelerator boards; the Quadram Quad386XT, the Kaypro 286 Processor Card and the VT286 from Veritek. The 286 boards represent two ways of adding 286 power to your Kaypro. The half-size Veritek board uses 8K cache memory; the Kaypro 286 processor board has its own memory and is identical to the board in the new Kaypro 286. The Quadram XT386 is one of the first 80386 boards available for 8088 computers. Unfortunately, it did not work with any of the Kaypro configurations tested. For this reason, this discussion will be limited to the two 286 boards.

The first computer used for testing was a Kaypro PC 30 with a 4.77/10 MHz processor board. Neither the VT286 nor the Quadram 386 accelerators would work with the 10 MHz processor board. We turned the PC-30 into a 4.77 MHz machine by replacing the 10 MHz processor board with a 4.77 MHz model used in the original PC, PC-10, and PC-20. Kaypro, unlike other MS-DOS computers, puts the microprocessor and its attendant hardware on a removable processor board. After this replacement the Veritek VT286 worked quite well, though the Quadram board did not.

To make it clear: those of you with 10 MHz processor boards cannot use the Veritek board. It won't work. Those of you with 4.77 MHz processor boards can use the Veritek board. Between the 4.77 and the 10 MHz board, Kaypro manufactured an 8 MHz board. The 8 MHz board does work with the VT286, according to Veritek, but we didn't test it.

(Editor's Note: Neither the Veritek board nor the Kaypro 286 board will work with the very earliest PC-10s. Their hard disk controllers run at 5 MHz, while the upgrade boards use 10 and 12 MHz speeds. If your hard disk controller consists of two boards, one bolted to the hard drive and connected by cables to another in an expansion slot, you will have to change controllers before you upgrade.)

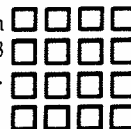
THE TESTS

We used several performance measurements (see chart on following page). One was the Norton Utilities System Information (version 3.0), long an industry standard. As you can see from the accompanying chart, the 4.77 speed of the V-20 is rated at 1.7 times the speed of an IBM 4.77 8088. This is not accurate.

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HARDWARE REQUIREMENTS

CP/M: 64K (53K TPA) & CP/M 2.0 or higher.
MS-DOS: 128K (or more) & MS-DOS/PC-DOS 2.0 or higher - ANSI.SYS.
Printer: 132 columns (compressed pitch supported), continuous forms.
Disk/s: Dual Floppies/Hard Disk/Both - 191K recommended, less works.
CRT: 80/24 with Clear, Home, Clear to EOL, Up, Down, Left, Right.

Norton's test is slanted because it relies heavily on the integer multiply test, which the V20 does well (as seen by the PC Labs test results).

We also used the PC Labs tests from PC Magazine, which measure performance relative to the IBM PC. One of these, the NOP (No Operation) test, simply has the computer running through non-calculating instructions for a certain time. Another, the integer multiply, multiplies whole numbers.

The first and last tests on the chart you can do on your own. Using the PRINTTST file from WordStar 4, use find-and-replace to replace each "e" in the file with "qx." When finished, use *KQ to abandon the resulting mess.

The Lotus test is also simple to duplicate. In cell A-1, insert the following formula: "3 x 3.1416 / .000003 x .046." In A2 replicate A1, but put "+ A1" at the end of the formula. Use "copy" to replicate the formulas from A3 through Z200. This gives you a fair-sized 5,200-cell file. Ask for a recalculation and time the process.

We also tested the VT286 with the CACHE-AT.EXE program, which is a portion of Golden Bow's Vcache software. CACHE-AT is designed specifically for 80286 computers using extended memory. It worked on the Kaypro 286 processor board tested

here, but did not run when tried with the Veritek VT286. That means any disk caching done with the Veritek board must use an 8088- type program, which will consume precious memory below 640K.

THE VERITEK VT286

The smallest, least complex, and least expensive of the boards tested is the Veritek VT286. It had no trouble with our Kaypro PC 4.77 MHz processor board, but as noted above, it did not work with the 10 MHz board. Kaypro says this is because one of the bus lines not used in earlier Kaypros is used on the 10 MHz board. As it happens, the VT286 also tries to use this line. The result is an insoluble conflict.

The VT286 is a half-size board carrying an 80286 and using an 8K cache for storing instructions and data (the cache can be switched on or off). Because it also has an 8088 processor, it works in either 4.77 MHz 8088 mode or 10 MHz 80286 mode. An optional 80287 co-processor can be run at five, six, or ten MHz by moving jumpers on the 286 board.

Installing the board is not difficult, but extreme care is necessary whenever chips are being removed and replaced. Installation begins by configuring one jumper on the VT286 board ac-

TEST RESULTS

KAYPRO CONFIGURATION: (read down)

TEST RESULTS (read across)

QX replace
(seconds)

Norton SI
(relative to
4.77 Mz IBM)

PC NOP

PC INT. MULTIPLY LOOP

LOTUS

4.77 8088

4.77 Mz	37.95	1.0	1.03	1.01	34.16
W/ VT286	13.52	7.7	4.09	6.49	7.69

4.77/10 V-20

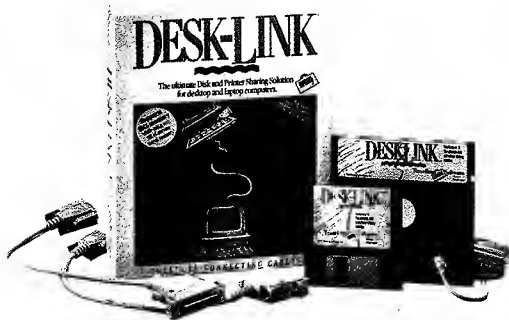
4.77 Mz	36.14	1.7	1.08	1.82	30.43
10 Mz	21.09	3.2	1.86	3.57	17.57
W/ VT286	----	----	----	---	----

6/12 286

6 Mz	16.26	5.8	2.05	6.06	11.99
12 Mz	7.45	13.3	4.19	12.20	5.05

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cording to the degree of IBM compatibility of the computer, as listed in the product documentation. The Kaypro PC we tested proved to be 100 percent IBM compatible. The 8088 or V-20 microprocessor is removed from the computer's processor board and placed on the VT286. The VT286 board is placed in a slot near the computer's processor board, and a cable runs from the 8088 socket on the Kaypro board to the VT286 board. When ordering the board, be sure to tell Veritek it's for a Kaypro. They supply—at no charge—a longer cable, properly folded, for connecting the VT286 to the processor board.

Once the board is installed, you turn on the computer and go to work. The one flaw is that the computer re-boots when the board is switched from 286 to 8088 mode, which could be a catastrophe if you haven't saved your work.

All standard software worked well, including RAM-resident programs like SuperKey, SideKick, and others. As the test results show, the board performed respectably, giving the Kaypro PC a sharp and noticeable increase in speed. It worked at full speed on all software tried, but you can expect problems on some speed-sensitive games.

The VT286's memory cache proved to be quite a performer. With the cache set on, the VT286 board took 13 seconds to perform the "QX" speed test using WordStar's PRINTTST. With the caching feature turned off, the same test takes 33 seconds.

THE KAYPRO 286 PROCESSOR BOARD

This is the same board used in Kaypro's latest 286 computer. It is full length, carries one megabyte of memory, and will fit in any earlier Kaypro 8088 chassis.

Installation is simplicity itself. Pull the old processor board out of its slot, remembering to first disconnect keyboard and speaker cables, and put the 286 board in its place. Then change some dip switches on the multi-function board to disable the old, slow, 8-bit memory. If you don't do this, the memory on the 286 board won't function.

There is one caveat in installation. For the first year of manufacture, the Kaypro PC had only 8-bit expansion slots. After that, every Kaypro PC chassis had two 16-bit slots and seven 8-bit slots. The hardware to expand two of the eight bit slots to 16 bits is included, but unless you are good with a soldering iron that change is better left to your dealer. The Kaypro 286 board will work in an 8-bit slot, but you won't be able to use 16-bit, AT-specific hardware, such as extended memory boards.

Once the 286 board is installed, your computer is essentially a 286 computer. On boot, the sign-on message indicates an 80286 processor. Once you have the board running, you must run Kaypro's SETUP program and configure the 286's CMOS RAM to reflect your specific hardware configuration (the number and type of disk drives, the amount of memory installed, etc.) Oddly enough, if you have a hard disk you must tell the CMOS RAM that you don't have one. This is because the 80286 processor expects an AT-type hard disk, while the one in your machine is an XT-type.

When the board is running, the speed is fantastic. As you can

see by the chart, the Kaypro 286 outperformed the VT286 in every category. All software worked well, including RAM-resident programs mentioned above and the Golden Bow disk cacher. No problems were encountered with any software tested.

SUMMARY

The VT286 worked well. It is somewhat limited by its dependence on caching instead of having its own memory. The Kaypro 286 board has the edge in performance because it does have its own memory on board, and it has the further advantage of being offered and serviced by Kaypro. Also, when installed in a 16-bit slot, the Kaypro board will access other 16-bit devices, such as fast VGA boards, extended memory boards, and high-speed graphics adapters. The Kaypro board makes the computer a true AT-compatible.

As for price, the recent flap regarding Japanese chip imports has led to memory chip cost instability, which has prices fluctuating wildly on a daily basis. As a result, the price of the Kaypro board may vary from as low as \$900 to as high as \$1200. The VT286 is priced at \$349, though Veritek says most dealers offer it at \$299. The Veritek board doesn't offer the compatibility or speed of the Kaypro board, but it doesn't do a number on your bank account either.

Both Veritek and Kaypro have excellent support, though neither provides an 800 number for telephone support.

There are dozens of other accelerator boards on the market. Before buying, make sure the board will work on your computer. Try the two speed tests on your computer at home. Then do the same tests on the board you are considering.

If you order by mail, be sure there's a "no questions asked" return policy. Get it in writing. If you decide on a board with its own memory, try to order it with no memory on board. You can install your own for less money.

Is it all worth it? Try a faster computer. If you can go back to the slow system, you're a better—or at least more patient—person than I.

Steve Gilliland is a computer consultant and writer in Lake Havasu City, Arizona.

QUICK REFERENCE SUMMARY

Product: Kaypro 286 Processor Board

Manufacturer: Kaypro Corporation
533 Stevens Ave.

Solana Beach, CA 92075

Telephone: 1-800-4-KAYPRO; ask for the number of your Kaypro dealer

Sugg. List Price: Varies; range is about \$900 to \$1,200, depending on current price of memory chips.

Hotline Number: 565-53

Product: VT286

Manufacturer: Veritek Technical Corp.

1320-11B Grand Ave.

San Marcos, CA 92069

Telephone: (619) 744-2313

Sugg. List Price: \$349

Hotline Number: 566-53

NON-PROGRAMMED REPORTS IN dBASE, PART 2

Getting the most from the report generator

BY JOSEPH COMANDA

If you've ever tried to maintain a mailing list with your word processor, you will appreciate the structured, fill-in-the-blank approach a database program brings to data entry. Word processors, being text-oriented, are very big on flexibility but rather short on structure.

At the same time, database managers also give you the flexibility to rearrange that information (by indexing or sorting) and to print it out in a variety of formats. If you've ever tried to print labels from a database stored in a spreadsheet, you will appreciate that flexibility. After all, spreadsheets, being number-oriented, are big on calculations but weak on rearranging text into different formats.

As far as database managers go, dBASE has a mixed track record. It provides record-and-field structure, and it's good at rearranging information, but it's a little weak on designing reports. A dBASE programmer can get any kind of report imaginable out of it. But if you don't program, you're limited to labels and tabular (or columnar) reports. dBASE IV, now on the horizon, promises, among other new features, a better report writer that should greatly expand the range of possibilities for non-programmers. Until it's out, though, we'll all have to make do with the tools at hand.

Last month I discussed how to use dBASE III PLUS' label generator to produce simple labels and more complex free-form reports. This article will cover the same ground for the report generator. I'll show how it works, how to use it to design simple reports, and how to tease it into doing a little more.

I've written the article with intermediate dBASE users in mind. Beginners should start with my two introductory articles in the August and September 1987 issues of *PROFILES*. I will be referring specifically to the features of the report generator in dBASE III PLUS, but readers using dBASE III should be able to achieve the same effects except where noted.

DBASE'S REPORT GENERATOR

We'll begin by designing the simple inventory report shown in Figure 1. You'll notice that information is printed in columns.

You can't get around that very easily, but you do get to decide how many columns you want, what headings to give them, what will appear in each one (its content), and whether numeric information will be totalled. Beyond that you can specify the title for the report, but you have to live with the page number and date arrangement.

The report generator is a menu-driven tool for creating a report form or specification file. The resulting report form will have an FRM extension and will contain the instructions for how to print the report. Later, when you actually print it, you will have to tell dBASE to use that report form.

One nice thing about dBASE report forms is that they specify the report layout but not which records are included at print time. That means that the same report form could give you, for example, a listing of all the items your store carries, only items in stock, or only items that need to be reordered—depending on the selection criteria you specify at print time.

*dBASE
report forms
only specify layout;
you select the
records to be included
at print
time.*

DESIGNING THE INVENTORY REPORT

If you're treating this as a tutorial, you'll need to prepare a database file to use with

the report. First create one called CAMERAS with the structure shown in Figure 2. Then add the records shown in Figure 3.

When you're ready to begin, type the following commands at the dot prompt. The first one tells dBASE to put the CAMERAS database file into use. The second one tells it to create a report form called INVENT.FRM.

**USE CAMERAS
CREATE REPORT INVENT**

That will get you into the report generator.

Like the dBASE III PLUS Assist menu, the report generator screen (shown in Figure 4) consists of a series of pop-up menu boxes linked to a single top-line menu. You can use the left and right arrow keys to move to different boxes, the up and down arrow keys to move to lines within the boxes, and the Enter key to select a highlighted option. You can also press the first letter

Page No.		1					
05/26/88							
Camera Inventory Report							
Maker	Film	Class	Cost	Price	Stock	Level	Wholesale Value
Kojak	35mm	Reflex	185.00	250.49	25		4625.00
Kojak	110	Disc	25.00	34.95	45		1125.00
Kojak	110	Cartridge	23.00	32.50	15		345.00
Kojak	600	Instant	29.00	40.95	29		841.00
Schatz	35mm	Reflex	212.00	285.50	10		2120.00
Nisson	35mm	Reflex	170.00	230.40	38		6460.00
Miyama	35mm	Compact	95.00	129.30	40		3800.00
Miyama	600	Instant	18.00	25.50	7		126.00
Zeus	35mm	Compact	100.00	135.75	25		2500.00
AutoFocus	110	Disc	19.00	42.50	50		950.00
PolarBear	600	Instant	21.00	29.50	15		315.00
Nisson	110	Cartridge	32.00	39.50	50		1600.00
*** Total ***							25437.00

FIGURE 1: A simple dBASE columnar report

of a top-line menu option to jump directly to its box.

As you move around the menu system, pay attention to the lines at the bottom of the screen. The reverse-lit line (called the Status bar) indicates current settings or options. Right now it should tell you the drive you are currently logged onto and the name of the report form. It will also tell you if the Numlock or Caplock keys are on and which column you are working on.

Just below the Status bar is the Navigation line. It tells you what keys you can press at any point. Since it's easy to get confused at first, try to pay attention to the Navigation line. Once you get the hang of its terse wording, it can help you stay oriented.

The generator has five boxes:

The **Options** box controls items related to overall page layout.

The **Group** box has options related to handling groups of similar records in a report and permits group and sub-group headings and subtotalling. The report in Figure 5 uses some of these options.

The **Columns** box is the heart of the report generator. It permits you to define the headings and contents for each column in the report.

The **Locate** box lets you move quickly to a specific column in the report.

The **Exit** box has options for saving or abandoning the report design.

Designing a simple report, then (one without grouping), is a matter of defining page characteristics and then saying what you want in each column.

Record#	MAKER	FILM	CLASS	CDST	PRICE	DRDERPT	QTYDH	DRDERAMT
1	Kojak	35mm	Reflex	185.00	250.49	20	25	20
2	Kojak	110	Disc	25.00	34.95	30	45	40
3	Kojak	110	Cartridge	23.00	32.50	10	15	50
4	Kojak	600	Instant	29.00	40.95	10	29	50
5	Schatz	35mm	Reflex	212.00	285.50	20	10	20
6	Nisson	35mm	Reflex	170.00	230.40	20	38	20
7	Miyama	35mm	Compact	95.00	129.30	30	40	25
8	Miyama	110	Cartridge	35.00	47.90	10	18	50
9	Miyama	600	Instant	18.00	25.50	10	7	50
10	Zeus	35mm	Compact	100.00	135.75	30	25	25
11	AutoFocus	110	Disc	19.00	42.50	30	50	40
12	PolarBear	600	Instant	21.00	29.50	30	15	50
13	Nisson	110	Cartridge	32.00	39.50	10	50	50

FIGURE 3: The contents of the Camaras database file

Field	Field Name	Type	Width	Dec	Description
1	MAKER	Character	10		Manufacturer's name
2	FILM	Character	5		Film type
3	CLASS	Character	10		Class of camera
4	COST	Numeric	6	2	Wholesale cost
5	PRICE	Numeric	7	2	Retail price
6	ORDERPT	Numeric	2		Reorder level
7	QTYDH	Numeric	4		Quantity on hand
8	ORDERAMT	Numeric	2		Amount to reorder

FIGURE 2: The structure of the Camaras database file

SELECTING THE PAGE OPTIONS

We'll use the Options box to set up the report page. We'll start with the title.

Move to the Options box, highlight Page Title, and press Enter. That will bring up a new box offering you the possibility of a four-line title. If you're wondering what to do next, look at the Navigation line. It tells you that you can enter the report title and press Ctrl-End to exit. (That means hold down the Control key and press the End key on the numeric keypad.) Type in something like "Camera Inventory Report" and exit. You don't have to worry about centering it. dBASE will take care of that automatically at print time. The title box will disappear, and you'll be back in the Options box with only part of the title visible.

The rest of the page options break down into two categories: Yes/No options and numerical options.

You can switch any of the Yes/No options to their opposites by simply pressing Enter when the option is highlighted.

Changing a numerical option is trickier. First you press Enter when the option line is highlighted to get into entry mode, then you type in a new number, and finally you press Enter again to get back out of entry mode. You can tell when you're in entry mode because you'll see a sideways triangle to the left of the cursor. You can only leave an option line by pressing Enter to make the triangle go away. The Navigation refers to all these intricacies in rather cryptic language. Play with it some until you think you understand how it works.

Here's a list of the options and what they're for:

Page width—determines page width in characters

Left margin—number of characters at left side of page reserved for left margin

Options	Groups	Columns	Locate	Exit	05:58:36 pm
<div> <div>Page title</div> <div>Camera I</div> </div> <div> <div>Page width (positions)</div> <div>85</div> </div> <div> <div>Left margin</div> <div>5</div> </div> <div> <div>Right margin</div> <div>5</div> </div> <div> <div>Lines per page</div> <div>58</div> </div> <div> <div>Double space report</div> <div>No</div> </div> <div> <div>Page eject before printing</div> <div>Yes</div> </div> <div> <div>Page eject after printing</div> <div>Yes</div> </div> <div> <div>Plain page</div> <div>No</div> </div>					
CREATE REPORT	(C)	INVENT.FRM	Dpt: 1/9		

FIGURE 4: dBASE's report generator

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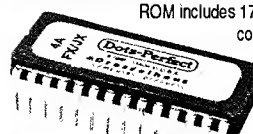
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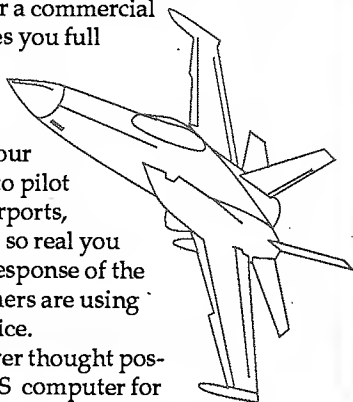
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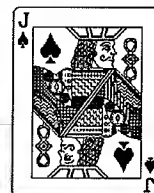
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Right margin—number of characters in from right side of page reserved for right margin

Lines per page—printable lines per page

Double space report—affects detail section of report only

Page eject before printing—starts report on new page

Page eject after printing—ejects last report page from printer

Plain page—A **Yes** suppresses date and page number and places headings only once at beginning of report. A **No** puts headings at the top of each page.

Use the following settings for this report:

Page width**85**

Left margin**5**

Right margin**5**

Lines per pag**58**

Double space report**No**

Page eject before printing**Yes**

Page eject after printing**Yes**

Plain page**No**

*The
Navigation line refers
to command options
in cryptic language;
play with it to learn how
it works.*

DEFINING REPORT COLUMNS

This report has seven columns. You will have to specify the contents for each one. Generally the content will be the name of a field, but it could also be a formula like QTYOH*COST, which would display the wholesale value for all the pieces of a particular item in stock.

In addition, you can have a column heading by typing one into the heading box that opens up just like the page title box. Finally, if it's a numeric column, you can decide to have totalling.

dBASE will set the width and decimal places (in numeric columns) for the column depending on which is wider: the column heading or the field content of the column. You can also override these settings.

As you fill in the the columns, they will show up in the report format box that appears in the lower half of the screen (See Figure 6). The string of greater-than and less-than signs at either end indicate the positions reserved for the left and right margins. The dashes indicate open space available for columns. Column

headings show up in this area as you enter them, and column widths appear below with X's for character columns and either 9's or #'s for numeric columns. The pound signs indicate columns with totalling.

Use the right arrow key to move across to the Column box and specify the following options for each column. As you complete each column, use the page down key to move to the next one. Watch the Navigation line for clues and remember to press the Enter key to get in and out of each option line. The exception to this is the heading box, where you must use Ctrl-End to exit.

Column 1Contents**MAKER**

Heading **Manufacturer**

Width**12**

Decimal places

Total this column

Column 2Contents**FILM**

Heading **Film**

Width**5**

Decimal places

Total this column

Column 3Contents**CLASS**

Heading **Class**

Width**10**

Decimal places

Total this column

Column 4Contents**COST**

Heading **Cost**

Width**6**

Decimal places**2**

Total this column **No**

Column 5Contents**PRICE**

Heading **Price**

Width**7**

Decimal places**2**

Total this column **No**

Column 6Contents**QTYOH**

Heading **Stock Level**

Width**11**

Decimal places**0**

Total this column **No**

Column 7Contents**QTYOH*COST**

Heading **Wholesale Value**

Width**15**

Decimal places**2**

Total this column **Yes**

When you're done, save the report using the Save option in the Exit box.

Page No. 1						
05/27/88						
Camera Inventory Report						
Film	Class	Cost	Price	Stock Level	Wholesale	Value
** Manufacturer AutoFocus						
110	Disc	19.00	42.50	50		950.00
** Subtotal **						
						950.00
** Manufacturer Kojak						
35mm	Reflex	185.00	250.49	25		4625.00
110	Disc	25.00	34.95	45		1125.00
110	Cartridge	23.00	32.50	15		345.00
600	Instant	29.00	40.95	29		841.00
** Subtotal **						
						6936.00
** Manufacturer Miyama						
35mm	Compact	95.00	129.30	40		3800.00
110	Cartridge	35.00	47.90	18		630.00
600	Instant	18.00	25.50	7		126.00
** Subtotal **						
						4556.00
** Manufacturer Nisson						
35mm	Reflex	170.00	230.40	38		6460.00
110	Cartridge	32.00	39.50	50		1600.00
** Subtotal **						
						8060.00
** Manufacturer PolarBear						
600	Instant	21.00	29.50	15		315.00
** Subtotal **						
						315.00
** Manufacturer Schatz						
35mm	Reflex	212.00	285.50	10		2120.00
** Subtotal **						
						2120.00
** Manufacturer Zeus						
35mm	Compact	100.00	135.75	25		2500.00
** Subtotal **						
						2500.00
*** Total ***						
						25437.00

FIGURE 5: A dBASE report with subtotalling

PRINTING THE REPORT

Once you've exited the report generator, you can print the report. The basic command to print reports is **REPORT FORM**, followed by the name of the report form. By adding the words **TO PRINT** to the end of the line, you can send it to the printer (otherwise it just goes to the screen). Be sure you turn the printer on and adjust the paper properly before you send off the report.

You can also add a **FOR** clause to include only a subset of records in the report. For example, the clause **FOR MAKER = "Kojak"** would include only those cameras manufactured by

Kojak. Similarly, **FOR QTYOH<=ORDERPT** would include only cameras that needed to be reordered.

*You can
add a FOR clause
to include only
a subset
of records in your
report.*

The following command will print a report that includes only 35 mm cameras.

REPORT FORM INVENT FOR FILM = "35mm" TO PRINT

ADDING SUBTOTALS

A report that merely lists records in a file sequentially may do the job well enough, but sometimes you can learn a lot more from a report that groups records in some meaningful way, especially if it also does subtotalling. The next report you'll produce (Figure 5) has headings and subtotals for each manufacturer.

The report generator's Group menu box has options for getting headings and totalling for each group, but first you'll have to organize the records in the file so they come out in the right order. That means either indexing or sorting. The following command creates an index that puts the records into alphabetical order by manufacturer as long as the index is in effect.

INDEX ON MAKER TO MAKER

Use the **LIST** command to display the records on the screen to see if they really are in the right order. Notice that the record numbers appear to be scrambled. That's because the index doesn't *sort* the records, it just helps dBASE retrieve them *as if* they were sorted.

Once you've created the index, you can go back into the report generator to specify grouping. Use the following command to change the report form:

MODIFY REPORT INVENT

The most important option in the Group box is the first one, **Group on expression**. Generally, the expression is a field name. In our case it will be **MAKER**. Whenever dBASE encounters a new group of manufacturers it will put a first-level heading before it. If there are any calculated columns it will also put a first-level subtotal after it.

Report Format						
>>>>Manufacturer Film Class Cost Price Stock Level Wholesale Value						
XXXXXXXXXX XXXXX XXXXXXXXXXXX 999.99 9999.99 9999 *****.						

FIGURE 6: The format box in dBASE's report generator

dBASE will automatically supply a minimal heading for the group consisting of the content of the grouping expression. We can also specify more text by filling in the second option in the Group menu, **Group heading**. If you put the word "Manufacturer" there, you'll end up with the kind of first-level heading you see in the report.

Here is a list of the other options and what they're for:

Summary report only—a **Yes** gives you subtotals and totals without the details

Page eject after group—forces a page break every time the group changes

Sub-group on expression—gives you second-level headings and subtotalling and works very much like the first option

Sub-group heading—custom wording for the second-level heading

For this report, use the following settings for the Group box.

Group on expression **MAKER**

Group heading **Manufacturer**

Summary report only **No**

Page eject after group **No**

Sub-group on expression

Sub-group heading

Notice that the new version of the report form doesn't have a MAKER column. It's not really needed since the first-level heading will tell us the manufacturer's name. To eliminate the column, move to it in the Column box and press Ctrl-U to delete the column. You can press F1 to see a list of this and other commands that work in the report generator.

When you're done, save the report and try printing it again.

*You can
produce reports with
more than one field
per column and
more than one line
per record.*

BREAKING FREE OF COLUMNAR RESTRICTIONS

So far we've only produced conventional columnar reports that follow the form of one field per column and one row per record. The report in Figure 7 departs from that convention in two significant ways. First, it places more than one field in each column. Second, it manages to get more than one line per

Page No. 1 05/26/88	
Customer Phone List	
Brush, Nicholas	Brushes Unlimited 123 Market Street Philadelphia, PA 19107 (215) 123-4567
Foster, Frederick	Foster Fences 2345 Iron Gate Way Philadelphia, PA 19123 (215) 354-7890
Marlowe, Philip	Private Eye, Inc. 657 Sunset Blvd. Los Angeles, CA 90234 (215) 945-7609
Milligan, John	975 Winding Way Menlo Park, CA 94025 (215) 867-2100
Norris, Sarah	Custom Travel Associates 2346 Woodlands Highland, IN 57463 (215) 678-9800
Walker, Martha	Walker Associates 987 Elm New Castle, DE 18045 (215) 768-2100
Wilson, Eleanor	Wilson Waterworks 123 Newgate Road Ardmore, PA 19272 (215) 657-8709

FIGURE 7: A complex dBASE columnar report

record, and it uses fancy formulas to control where the line breaks occur to produce an attractive phone list that doesn't appear to be in columns at all.

If you want to try this report, you'll have to create a basic name-and-address database file with the structure shown in Figure 8 and add a few records. Then, with the file in use, create the report form.

The report has two columns: the first is 40 characters wide and the second is 30. Notice that neither column has a heading and

Field	Field Name	Type	Width
1	FIRST	Character	15
2	LAST	Character	15
3	COMPANY	Character	30
4	STREET	Character	30
5	CITY	Character	17
6	STATE	Character	2
7	ZIP	Character	5
8	PHONE	Character	13

FIGURE 8: Structure of the file used for the phone list

that the content lines are packed with formulas.

Column 1	Contents	TRIM(LAST)+", "+FIRST
	Heading	
	Width	40
	Decimal places	
	Total this column	
Column 2	Contents	IIF(COMPANY=SPACE(30), CHR(0),COMPANY)+STREET+ TRIM(CITY)+", "+STATE+" "+ ZIP+"; "+PHONE+";;"
	Heading	
	Width	30
	Decimal places	
	Total this column	

The first column combines the last name and the first name. It uses dBASE's TRIM() function to trim off any trailing spaces at the end of the last name and then adds in a comma and a single space before tacking on the first name. The actual formula is:

TRIM(LASTNAME)+", "+FIRSTNAME

The second column uses a much more complex formula with many parts. (The actual formula gets squeezed onto the single Content line in the Column box.) The main idea is to tell the generator what to put on each line and to force line breaks either by exceeding the 30-character limit we've placed on the column width or by inserting a line-break symbol (;) surrounded by quotation marks.

Here's a simpler version of the formula (the line is broken to accommodate magazine margins):

**COMPANY+STREET+TRIM(CITY)+", "+STATE+" "+
ZIP+"; "+PHONE+";;"**

It tells dBASE to place the company field on the first line, followed by the street field. Since the company field takes up 30 characters (the full column width), dBASE will stick the street field on a second line. Since the street field is also 30 characters wide, dBASE will stick the city, state, and zip fields on a third line.

The actual contents of that third line are the trimmed city field plus a comma and a space, plus the state field plus a space, plus the zip code field.

The third line will not take up the full column width, so we need to force a line break with a semicolon. Then the fourth line contains the phone field followed by two line breaks. That produces the blank lines between records in the report.

The problem with the formula as it stands is that if the company field is blank, you'll get a blank line at the top of the second column. The first part of the formula in the box below, the IIF() function, eliminates that blank. Here's the full IIF() function used in the formula:

IIF(COMPANY=SPACE(30),CHR(0),COMPANY)

IIF() is a conditional function. It does one thing if a condition is true and another if it's false. The instructions inside the parentheses are divided into three parts separated by commas. First there's the condition, then there's what should happen if the condition is true, and finally there's what should happen if the condition is false. In this formula, if the condition is true (i.e., the company field is blank), dBASE will print CHR(0) (basically nothing). If it's false (the company field is not blank), it will print the company field. Unfortunately for those of you using dBASE III, the IIF() function was added with III PLUS.

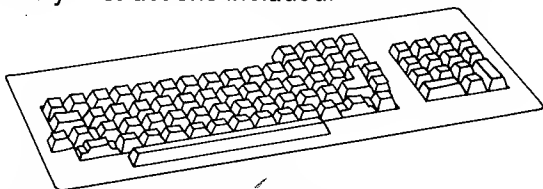
IN CONCLUSION

That's about as far as you can go with the report generator. It's fast and easy for putting things in columns, and with a few tricks you can get it to do a little more. For anything beyond that you'll have to begin programming—or wait for dBASE IV. ■

Joseph Comanda is a computer writer, trainer, and consultant in Philadelphia and a frequent contributor to PROFILES.

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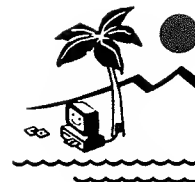
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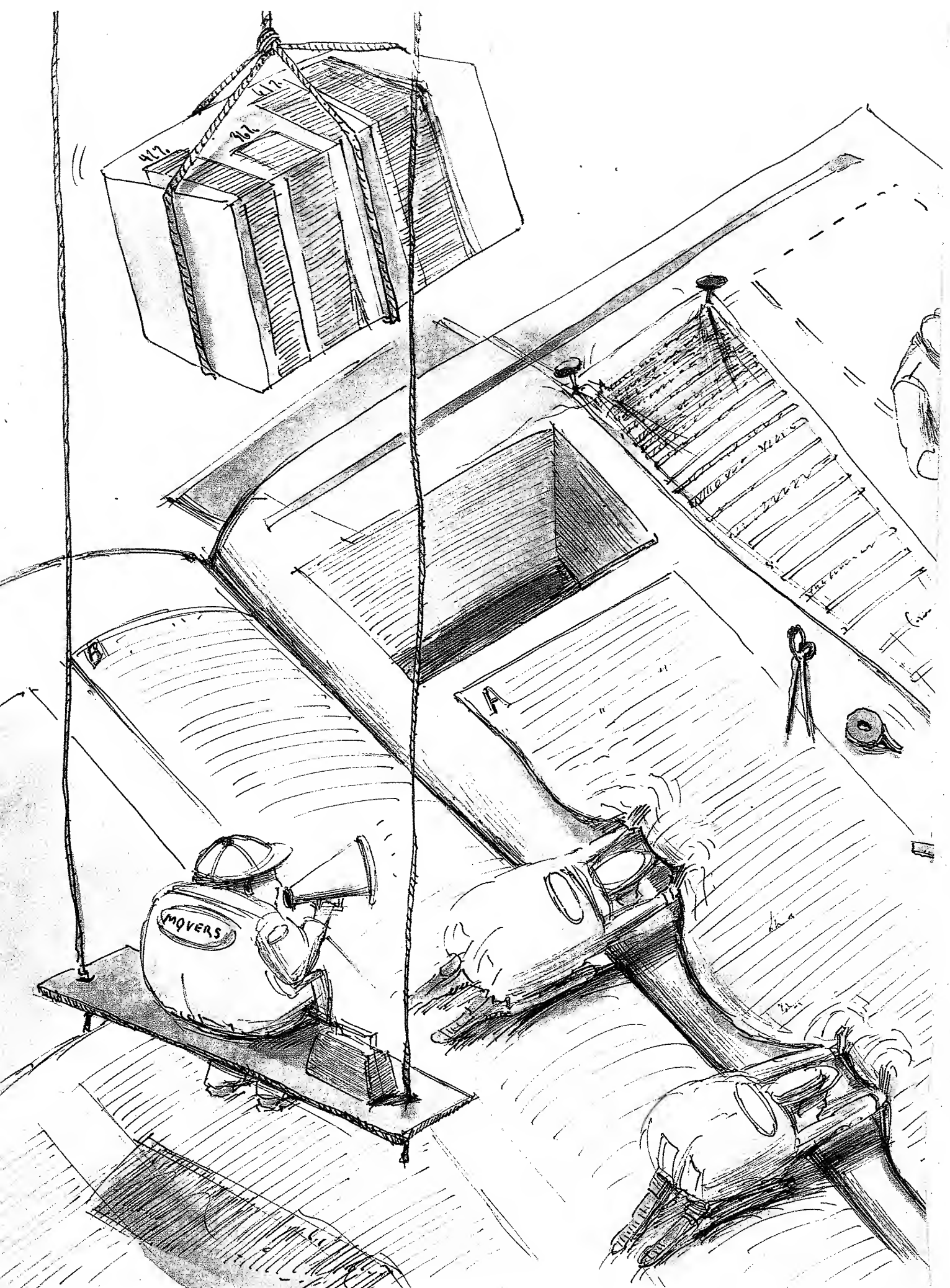
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Do It With Style!

Using stylesheets with Microsoft Word

BY JIM SPICKARD

I've got a problem. Like most writers, I work in several media. I write articles for magazines and academic journals. I write books. I've written a play or two. And letters—lots of letters.

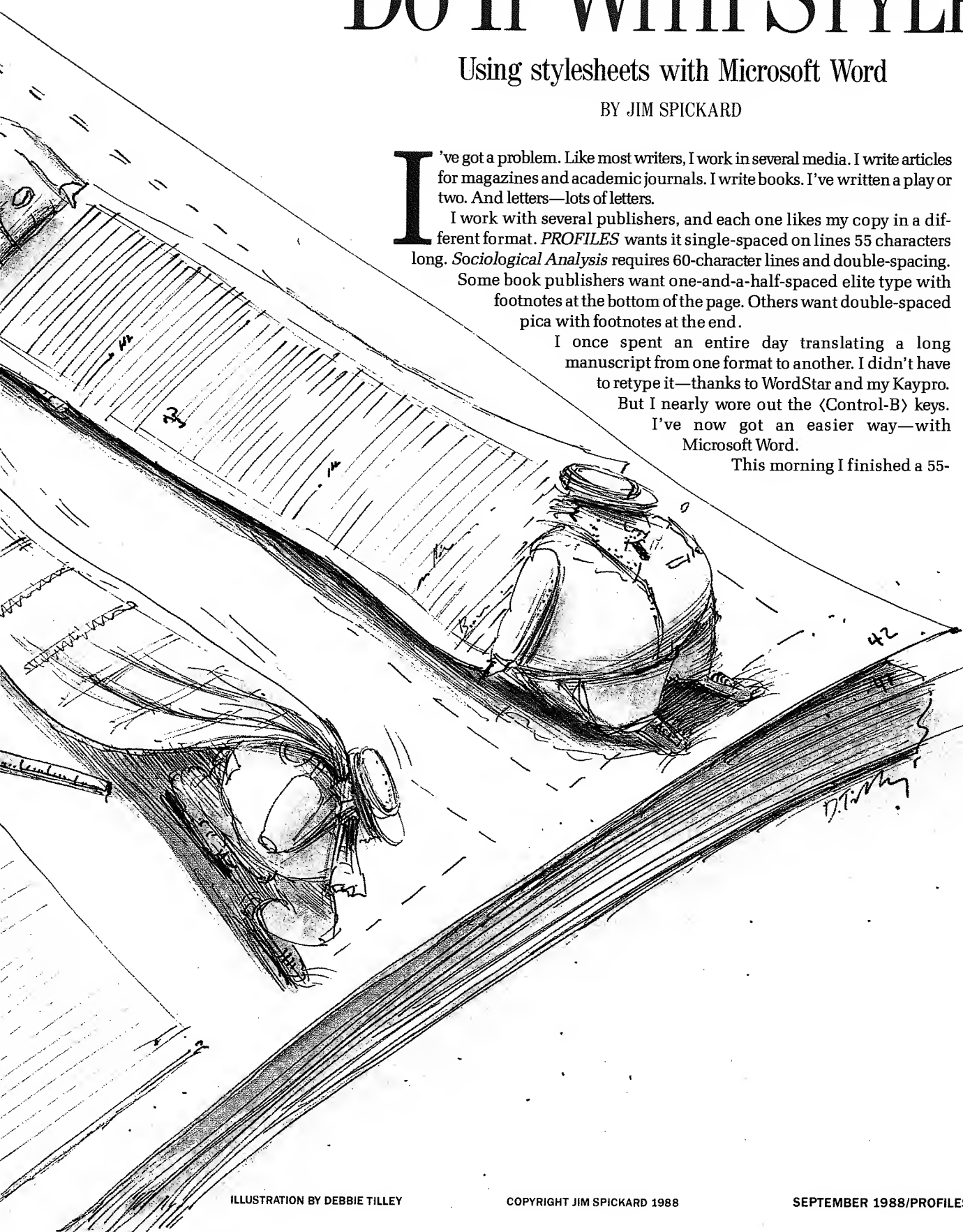
I work with several publishers, and each one likes my copy in a different format. *PROFILES* wants it single-spaced on lines 55 characters long. *Sociological Analysis* requires 60-character lines and double-spacing. Some book publishers want one-and-a-half-spaced elite type with footnotes at the bottom of the page. Others want double-spaced pica with footnotes at the end.

I once spent an entire day translating a long manuscript from one format to another. I didn't have to retype it—thanks to WordStar and my Kaypro.

But I nearly wore out the <Control-B> keys.

I've now got an easier way—with Microsoft Word.

This morning I finished a 55-



page article on one of the new Japanese religions. With five keystrokes and a flick of the mouse, I changed it from the single-spaced 75-character lines in which I type to the double-spaced 60-character lines the publisher likes. Four more keystrokes made Word hyphenate the text to fit the new line lengths. I queued it, printed it, and sent it off.

The same thing happens when I write letters. Like most folks, I put my address in the upper right corner of the page and the address of the person I'm writing flush left above the text. After I print the letter, five keystrokes reformat it like an envelope: my address to the left and the correspondent's address centered. Word automatically hides the date and the text of the letter; I just stuff an envelope in the printer and go.

How do I do it? Simple. I've harassed Microsoft Word's style sheets. To my mind, they're the most powerful feature of a truly powerful word processor. Not only do they let me shift formats quickly, but they standardize my output. Letters always look the same. Tables and block quotes take shape effortlessly. I can focus on the text and let Word beautify the page.

If you're new to Word, you probably haven't tried style sheets yet. Or maybe you've found them a bit hard to set up. You have to think about pages and entire documents, not just paragraphs and lines. But style sheets aren't fundamentally difficult—even for people who are using a word processor for the first time.

In this article, I'll get you started. I'll assume you've worked with Word for a while—at least enough to be able to find your way around Word's menus. You should already be able to format a single character, paragraph, or division using the "<ESC>f" menu. Style sheets *replace* that menu, but their logic is much the same.

I'll show you a simple style sheet for letters, then one for a longer document. We'll see how to format characters, paragraphs, and divisions, then alter them with a few keystrokes.

When we're done, you, too, will be able to work more quickly.

WHAT'S A STYLE SHEET?

Remember your first typewriter? After rolling in your paper, you had to set the line spacing, margins, and tabs you wanted—and change

them for each kind of writing. Envelopes had one format, letters another, term papers a third. I remember graduating to a fancy electric model that let me switch from pica to elite. I was so pleased—I didn't need two typewriters any more!

Most word processors work the same way. WordStar and Word-

Perfect make you insert ruler lines and special commands in your document to format your page. These commands don't appear on paper. But unless you use them, the page won't look right. Every time you change formats, you need new commands—just like resetting your typewriter's margins.

Microsoft Word is different. You can, of course, set spacing, margins, and tabs manually. But you don't have to. It's far easier to tell Word once and for all how you want your document to look. You do so by attaching a *style*

RA	P.O. Box 12345		
DA	Archeopteryx, AL 10101		
	8 March, 1988		
IA	J.Q. Public, President		
IA	Ace Marshwiggles		
IA	798 Old Swamp Road		
IA	Gravity, Texas 01010		
SA	Dear Mr. Public:		
SP	I am writing to confirm my appointment to visit your marshwiggles plant next Friday at 9:30 AM. I shall be accompanied by five Federal officials, potential purchasers of your products. I would appreciate being met at the gate.		
CL	Sincerely,		
NA	S.Q. Foxtail		
SP			
Pg1	Co42	{ }	? Microsoft Word

FIGURE 1: A sample letter with Formatting Codes.

sheet to it.

A style sheet is like a blue-print. It contains a set of instructions that tells Word how each part of the document is to be displayed.

The style sheet gives each character, paragraph, and division a code. That code corresponds to a style code in the blueprint. A "standard paragraph" (code "SP"), for example, may be double-spaced pica type with a half-inch first line indentation. A "block quote" (code "QU") may be single-spaced pica, indented 0.8 inch from each margin, followed by a blank line. You don't have to use these code names; I just find them easy to remember. Almost any one- or two-letter code will do.

Normally, you don't see the codes on the screen. And they certainly don't appear at your printer. You can view them, however, simply by turning on the "style bar": to do this type <ESC>wo<TAB><TAB><TAB>y<CR> and they appear in the left margin.

To format a document, you first attach the style sheet to it. Type <ESC>fsa<F1> and choose one of the "*STY" files from the list. Word comes with several sample style sheets. "FULL.STY," "SEMI.STY," "SAMPLE.STY," and "OUTLINE.STY" were all on my utilities disk. Just use one of these until you've made your own.

Once the style sheet is attached, you can let it shape your document. To format the character, paragraph, or division on

which the cursor rests, type an “<ALT>-Code” sequence. (Hold down the <ALT> key and type the code.) In my style sheets, <ALT>-SP creates a standard paragraph, <ALT>-QU creates a block quote, and <ALT>-1 centers, capitalizes, and underlines a title. You don’t have to reformat every paragraph you write. A new paragraph automatically takes the format of the previous one, unless you specifically change it.

Divisions work like paragraphs. A “standard division” (code S/) may have 1-inch margins all around with page numbers in the upper right hand corner. A “title-page division” (code T/) may have two-inch right and left margins, three-inch top and bottom margins, and no page numbers. You can specify styles for characters, too. On my style sheets, code UN underlines characters, code IT italicizes them, and code UB makes them underlined and boldfaced.

A style sheet in Word 4.0 can have up to 124 different styles (123 in Word 3.xx). You can use 73 different paragraph styles, 22 different division styles, and 29 different character styles. Some of these are preset. The standard paragraph and division, for example, determine the format when you power up, and the “footnote character” style only formats the footnote call. But most styles can be used anywhere. You’ve got lots of room to maneuver.

With a little planning, you can build several different style sheets that share code names. Code “SP” may be single-spaced in one and double-spaced in another. Just attach one or the other style sheet to change your document! No more searching-and-replacing format codes. No more <Control-B>. Reformatting your document couldn’t be easier.

A SAMPLE LETTER

Enough chalk talk—let’s see a style sheet in action. Take a look at Figure 1, a sample business letter.

The figure shows a letter as it might appear on the screen (after you turn on the style bar). The paragraphs are on the right; the left column shows the formatting codes I’ve associated with each of them.

The RA code stands for Return Address, single-spaced and in-

dented four inches from the left margin. DA stands for *DAte*, also indented four inches but followed by a blank line. IA is for the Inside Address, flush left with a right indent of 2.8 inches. SA is for *SA*lutation, flush left and preceded by a blank line.

“SP” stands for *Standard Paragraph*, the body of the letter. It

is single-spaced with a 0.8-inch first line indentation, preceded by a blank line. If I had several paragraphs, there would be blank lines between them. The *CL*osing (CL) is indented four inches, as is the *NA*me (NA). The latter has three blank lines before it for the signature. Figure 2—the style sheet proper—describes each format in full. It shows type-faces, point sizes, paragraph placement, and so on.

After starting Word, I attach this style sheet to my (blank) document with the command <ESC>f~~s~~a~~l~~e~~t~~t~~e~~r.sty. Only the code

SP appears in the left margin—indicating the standard paragraph is the default. Now I type the return address. Before pressing the carriage return, I type <ALT>-RA, and the address paragraph moves to the right on the screen. The code RA appears on the left. Then I type the date, hit <ALT>-DA, and the date moves over. I only have to type <ALT>-IA once; the three paragraphs that follow it use the IA style automatically.

After the last address line, I type the salutation and <ALT>SA. I don’t leave a blank line—that’s built into the style. There’s also no <TAB> at the start of the SP paragraph. I just type <ALT>-SP and I’m indented, ready to go.

The closing and name paragraphs work the same way. Word does whatever the style sheet orders. The process couldn’t be simpler.

Of course I could have formatted each paragraph individually. I could have typed <ESC>f~~p~~ and answered ten questions each time I changed paragraph styles. But I’d have to do that seven times for this letter—more often for a really complicated document. Style sheets are a lot less work.

THE ENVELOPE, PLEASE

Style sheets are flexible, too. Take a look at Figure 3. This is the envelope for the letter in Figure 1. The envelope style sheet ENVELOPE.STY is identical to LETTER.STY, except that paragraph styles DA, SA, SP, CL, and NA are formatted as “hidden characters.”

1	SP Paragraph Standard	STANDARD PARAGRAPH
	Regular (modern a) 12. Flush left (first line indent 0.8"), space before 1 li.	
2	RN Paragraph 1	RETURN ADDRESS--NAME
	Regular (modern a) 12 Hidden. Flush left, Left indent 4" (keep with following paragraph).	
3	RA Paragraph 2	RETURN ADDRESS
	Regular (modern a) 12. Flush left, Left indent 4" (keep in one column, keep with following paragraph).	
4	DA Paragraph 3	DATE
	Regular (modern a) 12. Flush left, Left indent 4", space after 1 li (keep with following paragraph).	
5	IA Paragraph 4	INSIDE ADDRESS
	Regular (modern a) 12. Flush left, Left indent 0.5" (first line indent - 0.5"), right indent 2.8" (keep in one column, keep with following paragraph).	
6	SA Paragraph 5	SALUTATION
	Regular (modern a) 12. Flush left, space before 1 li (keep in one column, keep with following paragraph).	
7	CL Paragraph 6	CLOSING
	Regular (modern a) 12. Flush left, Left indent 4", space before 1 li (keep with following paragraph).	
8	NA Paragraph 7	NAME BELOW SIGNATURE
	Regular (modern a) 12. Flush left, Left indent 4", space before 3 li.	

FIGURE 2: LETTER.STY: a style sheet for letters.

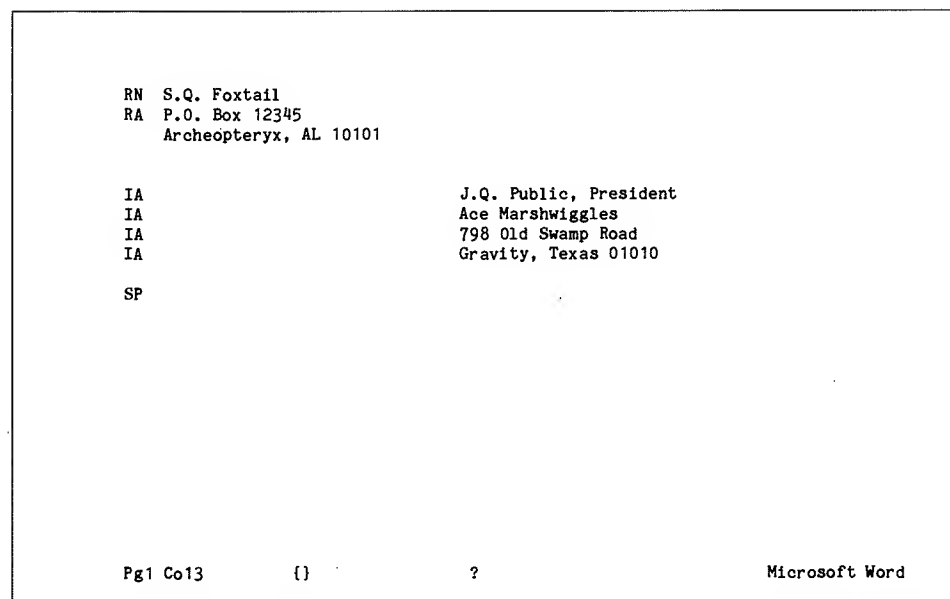


FIGURE 3: An envelope with formatting codes.

Word doesn't print or display them.

Style RN (Return Name), which was hidden in LETTER.STY, is visible and flush left. RA appears on the left rather than the right. IA is now centered.

It took me only five keystrokes and a click of the mouse to change letter to envelope: <ESC>fsc<F1>. Five more keystrokes and a bit of mouse work and the letter is back again. Things couldn't be easier.

CHARACTER, PARAGRAPH, AND DIVISION

LETTER.STY, of course, is pretty simple. It handles correspondence, but not much more. Full-fledged reports take a bit more planning. But the time is well spent. The few hours I put in when I first got my program have saved me days of time since then. Once you're used to style sheets, it pays to make them complete.

Figure 4 shows a small part of the DRAFT.STY that I use for most manuscripts. The full sheet contains codes for 17 character styles, 70 paragraph styles, and 11 division styles. I couldn't possibly reproduce all of them here. My other main style sheets—SUBMIT.STY, MANUSC.STY, and PROFILES.STY—have the same

paragraph names and codes, but they format each part a little differently. A look at this one style sheet will give you an idea of how complex style sheets work.

Character styles (numbers 5–8) are the simplest. Each style marks a combination of the 11 character formats Word provides: boldface, italic, underline, superscript, small caps, etc. I've set up codes for the variations I normally use. (I don't use them all.)

Paragraphs (numbers 1–4) are more complicated. After deciding whether the paragraph is to be flush left, centered, flush right, or justified, I set the left, right, and first-line indents. Then I chose line spacing and the number of blank lines to appear before and after each paragraph.

Some paragraphs, of course, should be all on one page—or

should be on the same page with the paragraph that follows. Imagine a page break splitting a return address, for example, or separating it from a date. That shouldn't be done! Word asks for such decisions next.

Then I set the tabs, chose the font to use, and—in Word 4.0—

1	SP Paragraph Standard	STANDARD PARAGRAPH
	Regular (modern a) 12. Flush left (first line indent 0.8"), space before 1 11.	
2	FN Paragraph Footnote	FOOTNOTE TEXT
	Regular (modern a) 12. Flush left (first line indent 0.4"), space before 1 11.	
3	O1 Paragraph 1	OUTLINE 1/ I.
	Regular (modern a) 12. Flush left, Left indent 0.8" (first line indent - 0.8"), space before 2 11. Tabs at: 0.6" (right flush), 0.8" (left flush).	
4	CD Paragraph 2	CENTER/DECIMAL-ALIGNED TABLE
	Regular (modern a) 12. Flush left (keep in one column, keep with following paragraph). Tabs at: 0.2" (left flush), 2.7" (centered), 5.1" (dec. aligned).	
5	PC Character Page number	PAGE NUMBER
	Regular (modern a) 12.	
6	FC Character Footnote reference	FOOTNOTE REFERENCE
	Regular (modern a) 12 Superscript.	
7	UN Character 1	Underlined
	Regular (modern a) 12 Underlined.	
8	CA Character 2	Capitals
	Regular (modern a) 12 Uppercase.	
9	S/ Division Standard	STANDARD
	Page break. Page length 11"; width 8.5". Start at page 1. Page # format Arabic at 10" from top, 4.25" from left. Top margin 0.5"; bottom 1.5"; left 1"; right 1". Top running head at 0". Bottom running head at 1". Footnotes on same page.	
10	B/ Division 1	BIBLIOGRAPHY
	Page break. Page length 11"; width 8.5". Page # format Arabic at 10.5" from top, 4.25" from left. Top margin 0.5"; bottom 1.5"; left 1"; right 1". Top running head at 0". Bottom running head at 1". Footnotes on same page.	
11	T/ Division 2	TITLE PAGE
	Page break. Page length 11"; width 8.5". Page # format Arabic. Top margin 2.5"; bottom 1.5"; left 1"; right 1". Top running head at 0". Bottom running head at 1". Footnotes on same page.	

FIGURE 4: Part of DRAFT.STY.

decided whether to give the paragraph a decorative border. It was a tedious process, but worth the time put in.

Divisions (numbers 9–11) are also complicated. Fortunately there aren't so many of them. For each division I had to set margins and page size; page number, footnote, and running head positions; page number style; number of columns; division break position; and—for Word 4.0—whether or not to print line numbers.

Whew! Finally done. When you think about it, though, it's not so bad. I'd have to answer the same questions when formatting an individual character, paragraph, or division manually. A style sheet just lets me do it once, for every conceivable possibility. Then I never have to format again.

BUILD YOUR OWN

To make things more concrete, I'll walk you through part of the style sheet in Figure 4. In the rest of this article, you'll see how to set up a style sheet and learn two ways to tell it how you want your text formatted.

Follow along now by typing the boldfaced keystrokes—either mentally or at your keyboard. The instructions are for Word 4.0; for Word 3.xx they're mostly the same.

First, we'll work with the style sheet directly.

Turn on Word (or clear the screen with **<ESC>tca**). Then attach a style sheet (**<ESC>fsa**). Look at the bottom highlight: I bet you didn't know you already have a style sheet attached! It's **NORMAL.STY**, a blank style sheet Word hooks to new documents. It's best to leave it blank, at least for now.

Type **test.sty<CR>** (to replace **NORMAL.STY**) and answer **y** to indicate that you want to create a new style sheet. Then type **<ESC>g**—the “gallery” menu—to see it. We'll start with a paragraph style, then work our way down.

With the cursor at the top of the style sheet, type **i** for “insert”. A set of questions will appear at the bottom of the screen. The first asks for the “key code”—the one- or two-letter code that will call the paragraph. Type **SP**, then hit **<TAB>** to move to the next field.

SP is a paragraph, so type a **p**, then **<TAB>** again. The “variant” field tells Word how to distinguish styles from one another. A number appears in this field, usually the next available variant number—in this case “1.” Normally you'll accept Word's choice. But **SP** is the “standard paragraph,” so hit **<F1>**. You'll see a list of choices: standard, footnote, running head, seven different heading levels, four index levels, and four levels for tables of contents, plus numbers 1–56. Use the arrow keys to move the highlight to “standard” and hit **<TAB>** to move to the “remark” field. Label the paragraph **STANDARD** so you'll remember what it does, and hit **<Enter>**.

The paragraph is named; now you'll format it.

With the **SP** paragraph highlighted, type **fp**. Answer the ten questions, using **<TAB>** or your mouse to move between fields. My standard paragraph is flush left, with the first line indented 0.8 inches, single-spaced with a blank line before. You can set yours however you want. I answered “no” to the last three questions—they handle page breaks and columns, which

the standard paragraph needn't consider. When you're done, hit **<Enter>**. That's all you need to do, unless you want the paragraph to have a special typeface. For elite type, type **fc**, move to the “font size” field and type **10**. You can also specify underlining, italics, boldface, etc. If you do, the whole paragraph will appear in these type styles. I prefer just to format the font size and use character formats when I need to underline or italicize a few passages.

That's what we'll do next. Move the cursor to the end-of-file diamond (on the top part of your screen) and press **i** to insert a character style. Type **UN** in the key code field, and hit **<TAB>** twice to accept “character” and “variant 1.” Type **Underlined** as a label. First you would hit **<Enter>**. Then type **f<TAB><TAB>y<Enter>** and you're done. You've told Word that every character marked with the code “UN” should have a line under it.

You can do the same for capitals and italics—or any other type style you want. If any of these should be elite type, you can choose that font size now. Or you can wait and make the entire style sheet elite by highlighting it (**<SHIFT>-<F10>**), typing **fc**, hitting **<TAB>** nine times, and typing **10** and **<Enter>**. (Try it—you can always change it back to pica.)

Now let's do the standard division. Once again, move the highlight to the end-of-file diamond and hit **i**. Type **S/** (the / means “division,” but you could use something else), then **<TAB>d<TAB><F1>**. Choose the standard division variant. **<TAB>** to the remark field, type **STANDARD** and hit **<Enter>**. Next you format margins, page numbers, page layout, and whether (and where) to print line numbers. The process is exactly the same as the one you use to format a division in your document. Just follow the menus after typing **f**. When you're done, type **ts** to save the style sheet and **e** to return to your document.

WORKING FROM TEXT

Unfortunately, when you don't have someone's instructions to follow, you have to keep switching between the style sheet and your document to see what you've done (**<ESC>g** to modify the style sheet, then **e** to see the results; **<ESC>g** to modify, then **e** to check again). The whole process is a bit daunting.

Word 4.0 provides a second way of building style sheets—one that doesn't take so much work. You can format characters, paragraphs and divisions directly in your text. When they're exactly what you want, you “record” them on your style sheet.

Let's see how this works.

In your document (not the style sheet), press **<ALT>-SP** to get yourself a standard paragraph, then type something amusing. When you've got a few lines, press **<ESC>fp** to format the paragraph differently. For example, if you were to type **c<TAB>2<TAB>0<TAB>2<Enter>**, the paragraph will be indented two inches from each margin, with each line centered. An odd look, but a good one to work with.

Now type **<ESC>fsr**. This will record the format on your style sheet. Answer the questions, hit **<Enter>**, and see the key code you assigned appear in the left margin. Then type

`<ESC>g` to view the style sheet directly. At the bottom you'll find the new style, all ready to use elsewhere.

Recording character and division styles works the same way.

PLAN AHEAD

Now you're ready to take off on your own. You can use the style sheets that came with Word, if you want. Or you can construct your own.

But before you go all out for construction, I urge you to plan ahead. You need to devote some thought to your style sheets—more than I've indicated here.

You see, the best thing about style sheets is that you can have more than one. Each style sheet covers the same paragraphs, but treats them differently. When I code a paragraph SP or QU, for example, it works with all my style sheets. DRAFT.STY prints both in single-space, with a blank line between them. MANUSC.STY prints SP double-space but QU single. SUBMIT.STY prints both double-space. I have only to change style sheets, and my document is transformed.

The first rule for multiple style sheets, then, is to make sure each one of them contains the same formatting codes. If not,

some of your text will look weird.

But you have to match more than the codes—you have to match *variant* numbers as well. If QU is variant 1 on one style sheet and variant 2 on another, the formats won't match—even if the same code is assigned to both paragraphs. I learned this the hard way.

Fortunately, it's easy to prepare one style sheet first, then copy it to another file for modification. I copied DRAFT.STY to SUBMIT.STY, highlighted the entire sheet with `<SHIFT>-<F10>` and chose 2 line spacing. I then modified the division layout and was done.

For an excellent guide to style sheet planning I recommend Peter Rinearson and JoAnne Woodcock's *Microsoft Word Style Sheets*, from Microsoft Press (\$17.95). Their system and sample style sheets were designed for Word 3.xx, but work well with Word 4.0, too.

However you go about it, Word's style sheets will make writing easier for you. ■

Jim Spickard is a sociologist and an independent computer consultant. He lives in Aromas, California.

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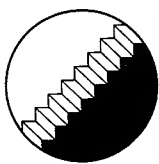
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SCRIPTWRITING WITH WORDSTAR 4

Shorthand automates the entire process

BY ROBERT J. SAWYER

Film and television scripts adhere to a rigid and fairly complex format that can make typing them a genuine nuisance. However, the formatting process can easily be automated using macros created with the Shorthand feature in either the MS-DOS or the CP/M edition of WordStar Release 4.0. In this article I'll assume you're familiar with script format requirements, and I'll describe how to set up a special version of WordStar just for scriptwriting and tell you step by step how to create the macros you'll need.

CUSTOMIZING WORDSTAR FOR SCRIPTWRITING

To make a customized version of WordStar for use as a dedicated scriptwriting program, boot up the WordStar customization utility WSCCHANGE. At the "What file do you want to install?" prompt, type WS. At the "What file do you want to save any changes to?" prompt, type SCRIPT.

Script will have the same defaults as your regular WordStar, except for the ones we specifically change below.

Go to WSCCHANGE menu **D** (WordStar), **A** (Page layout), **A** (Page sizing and margins). Set the following values:

B Top margin.....	6
C Bottom margin.....	6
F Print offset at left edge of paper	13
G Left margin	17
H Right margin	50

Type an **X** to return to the Page layout menu. Select **B** (Headers and footers). Turn item **B**, "Print page numbers," off.

Type another **X**. From the layout menu, select **C** (Tabs) and **A** (Regular tab stops). Answer "Y" to the "Do you want to change this?" prompt and type:

```
22<Enter>
27<Enter>
61<Enter>
<Enter>
```

Type **X** twice to take you back to the WordStar menu. Select **B** (Editing settings), **C** (Paragraph alignment), and then **A** (Right justification). Turn it off.

Type **X** three times to step you back to the main menu. Select **C** (Computer), then **D** (WordStar files). If you use MS-DOS, select **D** again. If you have CP/M, take choice **F**. Either way, you get the "Shorthand storage file" prompt. Enter the name **SCRIPT.OVR** instead of the default **WSSHORT.OVR**. This allows your scriptwriting copy of WordStar to use a different set of Shorthand definitions than your normal editing version does.

Type **^ X** to jump to the exit point from WSCCHANGE and answer **Y** to the "Are you through making changes?" prompt.

At the operating system prompt, make a copy of your **WSSHORT.OVR** file for use with **SCRIPT.EXE**. If you have MS-DOS, type:

A>COPY WSSHORT.OVR SCRIPT.OVR

If you have CP/M, type:

A>PIP SCRIPT.OVR=WSSHORT.OVR

A BOILERPLATE COMMAND FILE

Even with your customized copy of WordStar, you will still have to type a few bits of information at the beginning of each script you write. So that you won't have to type these manually each time, we'll put them in a boilerplate text file and use a Shorthand command to read it in. Boot up **SCRIPT** and open a non-document file called **SCRIPT.TOP**. Type these lines beginning at line 1, column 1:

```
.. this file should be edited with SCRIPT.EXE
.sv n=0
.sv s=LLLLL
.sv d=RRRRR
.h1                                     #.
```

In the ".h1" line, the number sign appears in column 71. Hit **<Enter>** after the final period and save the file with **^KD**.

We will now make a Shorthand macro for reading these com-

mands into a script file. Type <Esc> followed by a question mark. WordStar will take you to its Shorthand menu. In response to the "Character to be defined?" prompt, type **B** and hit <Enter>.

*You have to
type a few bits of information
at the beginning
of each script
you write.*

Next, WordStar asks you for a "Description for Esc menu." Type **Begin New Script** and hit <Enter>. Finally, WordStar asks you for a definition. We want to read in the file SCRIPT.TOP. In WordStar, the command to read in a file is ^KR. To enter a control character in a Shorthand definition, you have to precede it with ^P, so issue ^P ^K, and then follow it with an **R**. Note that ^P doesn't show up on screen. Next type the file name **SCRIPT.TOP**. At the end of a ^KR file name prompt, you have to hit <Enter>. WordStar considers the <Enter> key to be the same as ^M, so type ^P ^M. Finally, so that the cursor will jump past the dot commands, let's add a jump-to-end-of-file command, ^QC, by typing ^P ^QC. If you've done everything right, your macro should look like this:

```
^KRSCRIPT.TOP ^M ^QC
```

Hit <Enter> twice and WordStar will ask you if you want to store your new definition on disk. Answer **Y**. Remember that this Shorthand command is stored in the new file SCRIPT.OVR, not the usual file WSSHORT.OVR.

NUMBERED SHOT MACRO

The rest of our scriptwriting toolkit consists of a series of Shorthand macros. Let's create them first, then see how they all work together at the end. Use the names I give in quotes as the descriptions for the Esc menu.

The "Numbered Shots" Shorthand command, **N**, is by far the most complex.

Line #	What you enter	What appears on screen
1	^P ^Q	^Q
2	^P ^M ^P ^M	^M ^M
3	.lm7 ^P ^M	.lm7 ^M
4	.pm1 ^P ^M	.pm1 ^M
5	.rm62 ^P ^M	.rm62 ^M

6	.ma <space>n=&n&+1 ^P ^M	.ma n=&n&+1 ^M
7	.cp3 ^P ^M	.cp3 ^M
8	^P ^I ^P ^I ^P ^I ^P ^I <space> <space> ^I ^I ^I ^I	
9	&n/d&	&n/d&
10	^P ^P ^P ^M	^P ^M
11	&n/s&	&n/s&
12	<space>	

The line numbers are just for reference; you enter the macro on a single line. That's easier said than done, though. WordStar will not let you enter a macro this long just by typing from left to right, since the definition is wider than the screen. Therefore, start entering the macro with line 7, then after you've entered the space in line 12, use the left arrow key or ^S to move to the beginning of the macro and add in lines 1 through 6.

Let's look at what each line does.

You should only enter line 1, ^Q, if you have MS-DOS WordStar 4. It forces insert on until the macro finishes executing, then restores insert to whatever state it was in before you issued the macro. If insert is off, CP/M users must manually turn it on with ^V before issuing the macros in this article.

Line 2, ^M ^M, simply inserts two carriage returns to put a blank line between the end of whatever came before the numbered scene in the script and the beginning of the numbered scene description.

Line 3, .lm7 ^M, inserts a dot command that sets the left margin to column 7. Remember that we've already set the default page offset to 10 columns, or one inch. This means that the left margin is really 1.7 inches from the left edge of the paper.

Line 4, .pm1 ^M, inserts a dot command that sets the paragraph margin to column 1. The paragraph margin is the left margin setting for the first line of the paragraph only. Following lines will use the actual left margin setting of 7. The combination of line 3 and line 4 sets up a hanging indent, so that the scene number will jut out to the left of the scene description.

Line 5, .rm62 ^M, sets the right margin to column 62.

Line 6, .ma n=&n&+1 ^M, gets WordStar to put in shot numbers. WordStar 4 does not have a simple command for numbering items sequentially. However, it has powerful math capabilities that we can use to get it to work out sequential numbers for us.

The first thing we have to do is give WordStar a counter. Actually, we already did that with the line ".sv n=0" in our SCRIPT.TOP file. ".ma" is WordStar's math equation MailMerge dot command. ".ma n=&n&+1" asks WordStar to solve the following equation: *The new value of n equals the old value of n plus 1.*

Since we set *n* equal to 0 at the beginning of the file, the first time WordStar encounters this equation, *n* becomes 1. The next time it evaluates it, *n* becomes 2, and so on.

Line 7, .cp3 ^M, inserts a conditional page-break dot command. It tells WordStar that unless it can fit at least three more lines on the current page, it should start a new page. This prevents numbered shot descriptions from ending up all by themselves at the bottom of a page.

Shot numbers have to appear twice on the same line, once flush with the left margin and again flush with the right margin.

Line 8, four tabs and two spaces, moves the cursor over to column 63, which is where we want the right-hand scene number to appear.

Line 9, `&n/d&`, is a variable that prints the right-hand shot number. We'll get to line 10 in a moment. Line 11, `&n/s&`, is a variable that prints the left-hand shot number. The two ampersands mark the beginning and the end of the variable. The `n` is the actual scene number variable, the one we set to zero at the beginning of the document and have been incrementing by one each time we used the math dot command in line 6.

The `/d` or `/s` tells WordStar how to format this variable. To make the numbers appear flush left and flush right, regardless of how many digits are in the numbers, we're taking advantage of the other two `.sv` commands we entered at the top of the document:

```
.sv s=LLLLL
.sv d=RRRRR
```

These commands say, respectively, set the variable `s` equal to five L format characters and the variable `d` equal to five R format characters. Five L's means use five columns of space for this variable and set the variable flush left in those columns. Likewise, five R's mean use five columns of space for this variable and set the variable flush right. Thus, if the current value of `n` was 42, `&n/s&` would print out as 42 followed by three spaces. `&n/d&` would print out three spaces and then 42.

Time for our flashback to line 10, `^P^M`. This is WordStar's overprint-line command. It causes the right-hand scene number to print on the same line as the left-hand scene number. By overprinting them like this you don't have to worry about the right-hand number word-wrapping to a different line as you type in your shot description next to the left-hand number.

*WordStar won't
let you enter a long macro
just by typing from
left to right.*

Finally, line 12 just contains a blank space. This separates the left-hand scene number from the scene description you are going to type.

Since the description of almost every numbered scene will begin either with "EXT." for an exterior shot or "INT." for an interior shot, we can use WordStar's recursive macro capability to define two more Shorthand characters. Set Shorthand character E to show "Exterior Shot" on the Shorthand menu, and define

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it as:

`^[nEXT.<space>`

`^[]` is WordStar's way of representing `<Escape>` on screen. To enter it in the Shorthand definition, issue `^P` and then tap the `<Esc>` key. Since `<Esc>` is the key that begins Shorthand, `^[n` causes WordStar to execute Shorthand command `N`, which is the complex scene-numbering macro we just defined. After WordStar has done that, it types `EXT.` and a blank space.

Likewise, define Shorthand character `I`, "Interior Shot," as:

`^[nINT.<space>`

STAGE DIRECTION MACRO

The scene description macro, `<Esc>S`, is simple. Set its menu listing as "Stage Direction" and its contents as:

Line #	What you enter	What appears on screen
1	<code>^P^Q</code>	<code>^Q</code>
2	<code>^P^M^P^M</code>	<code>^M^M</code>
3	<code>.lm7^P^M</code>	<code>.lm7^M</code>
4	<code>.pm0^P^M</code>	<code>.pm0^M</code>
5	<code>.rm62^P^M</code>	<code>.rm62^M</code>
6	<code><space>^P^H</code>	<code>^H</code>

As before, line 1 is only for MS-DOS users. It forces insert on until the macro finishes.

Line 2 inserts two carriage returns to put a blank line between the scene description and whatever preceded it.

Line 3 resets the left margin to 7.

Line 4 disables the paragraph margin by setting it to zero.

Line 5 resets the right margin to 62.

Line 6 is a little trick. Even though the left margin is set to 7, WordStar puts the cursor in column 1 so that you can type a dot command instead of text, if you want. If you type anything other than a period, the cursor immediately jumps to column 7. I find that jump a little disconcerting, so this macro types a space, which moves the cursor to column 8, then backspaces (^H) to delete the space, leaving the cursor ready for you to type the scene description at column 7.

DIALOGUE MACRO

The dialogue macro, <Esc>D, is also quite easy. You should describe it as "Dialogue" and have it contain:

Line #	What you enter	What appears on screen
1	^P ^Q~	^Q~
2	^P ^M ^P ^M	^M ^M
3	.rr ^P ^M	.rr ^M
4	.cp2 ^P ^M	.cp2 ^M
5	^P ^I ^P ^I	^I ^I

Lines 1 and 2 are the same as for the other macros, forcing insert on and inserting a blank line.

Line 3, .rr ^M, restores the default ruler line that we installed with WSCHANGE, with a left margin of 17, tabs at columns 22 and 27, and a right margin of 50.

Line 4, .cp2 ^M, specifies that unless there are at least two lines left on the page (one for the character's name and at least one for the character's dialogue), begin a new page.

Line 5 jumps the cursor over two tab stops, to column 27, which is where we will type the character's name.

As before, we can chain this sequence into other macros. If the main character in your story is Carolyn, you might define Shorthand character C to be ^[dCAROLYN ^M(space)^H. This will insert the character's name, a carriage return, and then do the little space-backspace trick to position the cursor for you to begin typing dialogue.

WRITING YOUR SCRIPT

All our macros contain double carriage returns to leave a blank line between the various elements of the script, such as a character's speech or a scene description. Therefore, when you finish typing a script element, don't press <Enter>. Instead, issue the Shorthand command for the next element you want to type.

To start a new script, hit <Esc>B, which reads in our SCRIPT.TOP file.

To insert your first numbered shot, hit <Esc>E if it's an exterior shot, <Esc>I if it's an interior shot, or <Esc>N if neither of those choices is appropriate. Type your shot description all in capitals.

After the specific shot description, you will probably want to

describe the scene. Use the stage direction Shorthand command, <Esc>S, and type away in upper and lower case.

*After the
character's name,
you may add a description
of how the line should
be spoken.*

At the end of the description, you'll want some dialogue. If you've pre-defined a Shorthand command for each main character's name, hit the appropriate <Esc>-plus-letter combination. Or, if it's somebody who only shows up once or twice, hit <Esc>D and type the name yourself all in caps.

After the character's name, you may want to add a "parenthetical"—a description in brackets of how the line should be spoken. If you're using a pre-defined, character-specific Shorthand command, your cursor is already on the next line, so just hit <Tab> to move over to the right place for the parenthetical to begin and then type the description. If you used the general dialogue command, <Esc>D, you have to hit <Enter> after you type the character's name, and then <Tab>. Either way, at the end of your parenthetical, hit <Enter> and then begin typing dialogue.

To change to a different character, hit that character's <Esc> key at the end of the previous character's speech. To add some stage directions, hit <Esc>S and type away.

Figure 1 shows a script as it will appear onscreen. Since Robert and Carolyn are the main characters, I've assigned Shorthand commands R and C to their dialogue. But the waiter is just a walk-on, so I've used the general-purpose D command for him. The key names in **boldface** are the commands you execute as you write the script. The information in *italics* is inserted by your Shorthand commands. The material in normal text you just type normally. (When reading your script onscreen, you may find it useful to toggle the display of dot commands off with ^OP).

Figure 2 shows what the same script will look like when it's printed out.

Since we use MailMerge commands for shot numbering, you must print your scripts with M, not P, from the opening menu. Good luck—and remember to thank me in your acceptance speech for best screenplay Oscar. ■

Robert J. Sawyer is a member of the Writers Guild of the Alliance of Canadian Cinema, Television and Radio Artists and is a former staff member of the School of Radio and Television Arts, Ryerson Polytechnical Institute, Toronto.

<Esc>B
 .. this file should be edited with SCRIPT.EXE
 .sv n=0
 .sv s=LLLLL
 .sv d=RRRRR
 .h1 #.
 <Esc>I

.lm7
 .pm1
 .rm62
 .ma n=&n&+1
 .cp3

&n/s& INT. WRITER'S OFFICE - DAY<Esc>S

.lm7
 .pm0
 .rm62

ROBERT, a somewhat haggard-looking writer, stares monomaniacally into the glowing screen of his Kaypro personal computer. His wife CAROLYN enters. <Esc>C

.ir
 .cp2

CAROLYN

<Tab> (irritated, impatient)<Enter>
 Haven't you finished that article on scriptwriting with WordStar 4 yet? <Esc>R

.ir
 .cp2

ROBERT

Almost. It's just a question of getting the margin changes right. <Esc>S

.lm7
 .pm0
 .rm62

He hits a key on the keyboard. The computer responds with a BEEP. Carolyn shakes her head and exits. <Esc>E

.lm7
 .pm1
 .rm62
 .ma n=&n&+1
 .cp3

&n/s& EXT. BAR - NIGHT<Esc>S

.lm7
 .pm0
 .rm62

Carolyn and her friend BARBARA sit opposite each other in a booth. A WAITER approaches. <Esc>D

.ir
 .cp2
 WAITER<Enter>
 Can I take your order, ladies?

&n/d

&n/d

1 INT. WRITER'S OFFICE - DAY

ROBERT, a somewhat haggard-looking writer, stares monomaniacally into the glowing screen of his Kaypro personal computer. His wife CAROLYN enters.

CAROLYN

(irritated, impatient)

Haven't you finished that article on scriptwriting with WordStar 4 yet?

ROBERT

Almost. It's just a question of getting the margin changes right.

He hits a key on the keyboard. The computer responds with a BEEP. Carolyn shakes her head and exits.

2 EXT. BAR - NIGHT

Carolyn and her friend BARBARA sit opposite each other in a booth. A WAITER approaches.

WAITER

Can I take your order, ladies?

FIGURE 2

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FIGURE 1

SCREEN SMARTS

How to buy a monitor

BY JIM SPICKARD

I bought my first Kaypro years ago. It was one of those little gray boxes with two floppy drives and a 9-inch green screen. At the time, it was pretty hot technology. Not state-of-the-art, but close to it. It came complete with keyboard, disk storage, parallel and serial ports, and a monitor, plus the software I needed to run it. I have never regretted my purchase.

Times change, though, as have my needs. My second Kaypro is IBM-compatible. I needed that MS-DOS software. Once again I bought a package, this time one my dealer assembled: computer, hard and floppy drives, ports, mouse, and monochrome monitor. Again, I've been satisfied.

But once more, the computer world has moved. I chose monochrome when I bought my new system because the color monitors of the day couldn't display text clearly. Now they can. New programs combine text and graphics, making those colors more appealing. But I can't produce them on my screen. I'd like to upgrade, but I have to decide what to buy.

Perhaps you're in this position. You don't need a new computer, just a better visual display. But there are so many options! How can you choose among all the monitors and display cards now available?

This article should help you sort things out. I'll take you on a quick tour of monitor-land to help you decide what you need. Then you can go shopping.

DADDY, WHAT'S A CRT?

We'll start with the basics—the thing that looks like a small TV set sitting on your desk: the monitor. It's half of the display system you're looking for. The other half is an adapter card, which sits in one of the computer's expansion slots. You have to have both, and they have to match electronically. Only then can you get anything on the screen.

A monitor is essentially a picture tube—a CRT (cathode ray tube) in the lingo. An electron gun at the tube's back bombards the viewing screen with a thin beam of electrons. These hit a uniform phosphor coating in monochrome monitors, or phosphor dots in color monitors, and the phosphor glows, making the image you see. The gun turns on and off as it scans the screen, forming text and graphics in phosphor light.

Monochrome monitors have one electron gun. They're relatively straightforward. The kind of phosphor coating used determines whether they display in green, amber, or black-on-white.

Color monitors have three guns that strike precisely placed red, green, and blue phosphor dots whose emissions blend to

make colors. Color monitors use a shadow mask—a metal plate with tiny holes—to insure that a given gun hits only its assigned dots. Otherwise the colors would be muddy. Color monitors cost more than monochrome because of the shadow mask and the increased circuitry needed to control three electron beams.

Several factors influence the screen image. First, to display an image, the above-mentioned electron gun scans the interior surface of the screen every 1/60th of a second or so, both horizontally and vertically (just as you would read a page of text). If the vertical scan rate is too slow, the screen will appear to flicker. Some manufacturers overcome flicker by using a phosphor that emits light longer. But this can cause noticeable afterimages or "ghosts." Not a good thing.

Different monitors also have different horizontal scan rates. A high horizontal scan rate allows for more lines top to bottom, and therefore better resolution.

The number of phosphor dots on each line is also important. With more dots, the electron gun must turn on and off more rapidly. A high bandwidth means a faster gun, and thus a sharper image. With color monitors, the distance (pitch) between color dots also affects resolution. A lower dot pitch lets the monitor show finer detail.

Besides resolution, most monitors have a problem with glare. If the room light is wrong, the viewing screen acts like a mirror. Anyone whose monitor faces a window knows the eyestrain that results. Some manufacturers recess their screens to cut down on glare. Others tint the screen or gently etch it. Brightness helps, too. A brighter monitor resists glare better than a dim one.

Recently Zenith introduced a flat-screen monitor that almost completely eliminates the glare and distortion to which normal curved-screen monitors are prone. It is very easy on the eyes, but expensive.

All other things being equal, you should choose a monitor with high refresh and scan rates, a high bandwidth, low dot pitch, and low glare.

IT'S IN THE CARDS

A monitor is only as good as the adapter card that drives it, however. The adapter fits inside the computer and tells the monitor how to produce an image. A monitor may be capable of many scan rates, bandwidths, and so on, but the adapter determines the particular ones it uses.

At the most basic level, adapters place images onscreen using pixels. A pixel is a "picture element," the smallest unit of space onscreen that can be assigned its own color and intensity. A

pixel is composed of a cluster of phosphor dots in color monitors or a given area of phosphor coating in monochrome monitors. Pixels appear onscreen as very small dots, and they vary in size according to the adapter used. The more pixels that fit on the screen, the higher the resolution of the monitor. High resolution provides clearer, more readable text, so for the most part high-resolution adapters and monitors are better than their low-resolution counterparts.

Since different adapters control the monitor differently, one adapter might draw pictures 320 pixels wide by 200 pixels high. Another might make them 640 by 480. Obviously, the second will have greater resolution. But either will work as long as the program takes the adapter's abilities into account.

If you write your own programs, you can use any adapter you want—including some that can display 1,400 by 1,200 pixels at a time. Of course, your monitor has to be able to handle that resolution.

Until recently, most adapters were digital. They controlled the monitor by sending it ones and zeros. This was fine for text (which is coded digitally), but graphics suffered. Digital output can't blend colors or shades very well. Most digital adapters can only handle 16 different colors or shades at a time.

Analog adapters are more responsive. They vary colors by varying the intensity of the signal. Dimming the red dot a bit cools tones; dimming the blue dot warms them. Like TV screens, analog displays produce life-like tones. They are the coming thing in the IBM-compatible world, though they have not quite arrived.

Some adapters have their own memory to store colors and downloadable fonts. Others have graphics co-processors to speed up displays. As these become more common, so will high-quality analog displays.

DISPLAY STANDARDS

As with most things in the computer world, various standards for adapters have evolved. No programmer wants to write code for every adapter on the market. Most programmers now write for just a few major graphics standards. All but one were developed by IBM.

When IBM introduced its first PC, it couldn't display graphics. CP/M machines had been text-oriented, and IBM apparently thought that business people—its prime market—didn't need or want graphics, so the Monochrome Display Adapter (MDA) didn't offer them. Too bad for IBM.

Hercules Computer Technology soon developed the Hercules Graphics Card (HGC), which provided both text and high-resolution monochrome graphics. It sold like hotcakes—and still does. Most graphics programs support it as a matter of course. Until recently it was the highest-resolution graphics standard available.

Soon IBM introduced a Color Graphics Adapter (CGA). It provided low-resolution color, but fuzzy text. IBM's marketing clout forced most programmers to support CGA, but anyone who wanted both good text and color graphics had to buy two displays. CGA wasn't a long-term solution.

In 1986, IBM finally got it all together. It introduced its Enhanced Graphics Adapter (EGA). EGA provided colors for everyone: 16 in high-resolution, 256 in low-resolution mode. Text was readable, though not quite as nice as HGC. EGA quickly became the display of choice, though, since it was able to run CGA software without modification, with nicer text.

Just a year ago, IBM took things a bit further. Its new PS/2 computers use the Video Graphics Array (VGA). VGA is an analog display (the others are digital). VGA provides higher resolution at a "true aspect ratio." That means its pixels are square, so graphics appear onscreen just as they will on paper, with no distortion. And it supports a wider variety of colors, up to 256 out of a palette of 262,144. VGA can't handle any more colors at one time than EGA, but you get more choice as to what they are.

Though little software supports it yet, VGA is widely regarded as the standard of the future. Unless major technical breakthroughs occur, however, it is apt to be the highest common standard for a long time. It takes a graphics co-processor and lots of extra memory to do better than VGA. Such goodies greatly increase an adapter's cost.

HGC, CGA, EGA and VGA are the major display standards in the IBM-compatible world. I've listed the specifications of these and some lesser standards in a box on page 53. You needn't just choose one: most display cards emulate several of these standards in software. Kaypro's Multi-Video Board, for example, emulates MDA, CGA and HGC. Kaypro's EGA card emulates these plus the EGA standard. It will run almost all the software available today.

While EGA-compatible cards have become quite common, VGA-compatibles have not. Over a dozen manufacturers make them, but not all run even the little VGA software now available. Some cards require analog monitors; others drive digital monitors as well. If you're in the market, be sure the board has both BIOS and register-level VGA compatibility. "BIOS" refers to the Basic Input Output System, which is the built-in software that runs the VGA board. The BIOS that runs a non-IBM VGA card must match the IBM BIOS to be compatible. Registers are small data storage areas in the VGA board itself, and the term "register level" refers to the exact way video data is handled by the VGA circuitry. While BIOS compatibility means the software matches IBM, register-level compatibility means the hardware matches as well. To be VGA-compatible, a card must be both BIOS and register-level compatible.

MONITOR + CARD = PICTURE

"Wait a minute," you say. "I've already got an adapter card in my computer, and I've already got a monitor. Can't I just replace one or the other of them for a better display?"

Unfortunately, no. The problem is that cards and monitors are matched. Each of the display standards has its own horizontal and vertical scan rates, and most monitors are built to accept only one of them. You can't just use any card with any monitor. They have to be matched electronically.

A CGA adapter, for example, has a horizontal scan rate of 15.75 KHz. The electron beam scans the screen almost 16,000 times a

second. An EGA adapter, on the other hand, scans at 21.8 KHz—40 percent faster. Even with an EGA card in your computer, you need an EGA-style monitor to get a better picture. Without it, you have to run the EGA card in CGA mode—if the card will put out a CGA signal.

If you're moving from monochrome to color and don't need higher resolution, you may be able to get away with just a new monitor. Kaypro's display cards, for example, work with both monitor types. If your current card already produces one of the color standards' scan rates, just get a new monitor to match.

If you want to move from HGC or CGA to EGA or VGA, however, you'll have to spring for both a monitor and a card. You don't need to jump right to VGA, though. A bit of planning will let you add EGA now and VGA later on—without getting another new monitor when you decide to upgrade.

History tells us how.

When IBM introduced EGA, many users were stumped. They wanted the higher resolution of the new standard, but had a lot of money tied up in CGA equipment. Wasn't there a way to upgrade slowly, as the EGA software appeared?

NEC Home Electronics provided a solution. It introduced a

monitor capable of using several scanning frequencies. It could "read" the display adapter, discover what frequency it used, and adjust itself accordingly. This multiscan monitor worked with all the existing video standards. And it promised to work with future standards as well.

The parallel is obvious. If you want to wait before moving to VGA, buy an EGA-compatible card and a multiscan monitor. Make sure the latter accepts both analog and digital signals and has a "capture range" (see glossary) that includes 31.5 KHz (the VGA rate). (Most multiscan monitors will also work with a Macintosh II—a plus for those who own several computers.)

You might even save some money this way. Because there are so many of them, good EGA cards are pretty cheap. If you wait until the price of a VGA card comes down, you'll probably spend less overall than you would buying VGA equipment now.

SPECIAL-PURPOSE DISPLAYS

The aforementioned standards are the most common. But some users need more. Desktop publishers, for example, need high-resolution monochrome displays. They use up to four times the VGA resolution to display small type properly. Black-on-white displays are the most page-like and the easiest on the eyes.

Ted Silveira reviewed one of these monitors—the Genius, by Micro Display Systems—in "Desktop Publisher" in the May *PROFILES*, so I won't take time for them here. Most get their high resolution from special display adapters—included in the price. Ideally, they emulate the regular video standards, too. They should include drivers for various desktop publishing programs. At a minimum they should drive Ventura Publisher and Windows (which allows you to use Pagemaker).

Computer-aided design programs also call for higher resolution. Some makers of EGA-compatible boards include extra-high resolution for CAD applications, plus drivers for popular programs. These boards may or may not need fancy monitors. Any good multiscan monitor should work with them, though.

HOW TO CHOOSE

The first step in picking a display system is deciding what you need it for. Sounds obvious, doesn't it? If you're a painter wedded to the IBM-compatible world, you want VGA. If you're into desktop publishing, try high-resolution black-on-white. If you want to display 43 lines of color text with Microsoft Word, use EGA. If monochrome will do, use HGC.

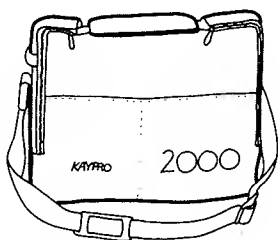
The list could go on. The point is, don't rush out to buy the latest thing if you don't need it. Considering the prices of the fancier systems, there's not much danger of that, except for those with money to burn. But it's worth saying anyway.

And make sure your software will run better on the display system you're considering. If it doesn't, there's no point in an upgrade.

Having decided on a video standard—and between monochrome and color—you should check out some equipment. It's a good idea to work with a monitor/adapter combo for an afternoon before buying it. Here functionality, aesthetics, comfort, and ease of use rule.

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Looking for a new carrying case for your Kaypro 2000 Laptop Computer? This padded nylon case is constructed of durable nylon fabric and has a detachable shoulder strap with a velcro closure. Take advantage of this special **CLOSEOUT PRICE!**



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Deliver To:

Name _____

Street Address _____

City _____

State _____

Zip _____

Allow 6-8 weeks for delivery. No charge orders under \$25.00 accepted. Credit card orders under \$100.00 will incur a 5% handling fee.

How does the monitor look running various types of software? Is text sharp? Are the colors clear or runny? What happens when you adjust the brightness and contrast? Do colors disappear or change? Or do they remain constant?

Are the lines between big areas of color well-defined? What happens when you try to draw something thin, like a spider web? Don't just rely on demonstration programs. Grab a painting program and play with it for a while. See how the monitor responds.

How well does the equipment switch between various video modes? Can you use all of them? Do they all show color or shades well? Or do some images seem covered with a white haze? A few early multiscan monitors rolled the image when switching between VGA's graphics and text modes. Others required manual adjustment when switching from one standard to another. You want to avoid such surprises.

Check out the ergonomics. Is the glare manageable or intense? Are the controls easily accessible or hidden out of reach? Is the screen comfortable to look at for long periods? Or do your eyes start to water after half an hour or so?

If you can, find out how much radiation the monitor emits. Monochrome monitors run below 20 KV, so radiation isn't usually a problem. Color monitors, however, use a much higher voltage. In either case, radiation shouldn't exceed .5 milli-Roentgens per hour at a distance of 5 centimeters. The FCC begins monitoring this radiation at 450 KHz; European authorities count anything above 10 KHz. If the monitor meets European standards for radiation, glare, and so on, you know you've got a good piece of equipment.

The perfect dealer, of course, will have several monitor/board combinations for you to try and will know the answers to all your questions. He or she will let you spend several hours making sure the equipment works properly and will replace it if it doesn't.

If you find such a dealer, buy all your equipment there. Even if you pay a little extra, you're getting a great deal.

PRICE

Monochrome monitors are the cheapest. A few sell for as low as \$110; \$200 will easily get you one capable of high-resolution graphics. Add a \$125 Hercules-compatible graphics card and you've got all the power most people need—for less than \$325. Word processing, spreadsheet, and database programs seldom require more.

A medium-resolution (CGA) color monitor runs about \$100 more than monochrome. A card might cost \$150, for a total cost of \$450. Remember, though, that the colors aren't great and the text suffers. CGA might not be worth the expense.

EGA monitors cost more. List prices average between \$700 and \$800, though most dealers (and all mail-order houses) charge considerably less. EGA cards cost about \$300, bringing the total to nearly \$1,000. If you really need color, that might be justified. Office managers, however, will probably not want to equip everyone with EGA.

Multiscan monitors cost \$900 or so—probably worth the extra

\$200 if you're eventually moving to VGA. VGA cards range in price from \$400 to \$600, with the better ones on the high end. The Zenith flat-screen monitor I mentioned above costs \$999; if you don't own a PS/2 you need Zenith's \$600 circuit board to run it. It emulates all the major display adapters, including Hercules.

Any way you cut it, it's a \$500 step from EGA to VGA—at least for now.

High-resolution black-on-white displays range from \$1,000 up to \$2,400, including the card. Extra-large screen multiscan monitors cost as much as \$3,000. That's a big chunk of cash.

THE NEC MULTISYNC II

To give you an idea of how to look for a monitor, let's check out NEC's newest multiscan monitor, the MultiSync II.

CONTINUED ON PAGE 67

TYPES OF DISPLAY ADAPTERS

MDA: Monochrome Display Adapter (IBM). Provides 720 by 348 pixel resolution at a horizontal scan rate of 18 KHz. No colors or graphics. Text is good: 9 by 14 dot character cell.

HGC: Hercules Graphics Card (Hercules Computing). Provides graphics at 720 by 348 pixels plus MDA compatibility. No color. Text is good. (Note: Hercules now makes a color adapter, plus an adapter that handles downloaded fonts for faster display of non-standard text. Both work with any EGA or multiscan monitor.)

CGA: Color Graphics Adapter (IBM). Provides 640 by 200 pixel resolution with four colors and 320 by 200 pixel resolution with 16 colors. Horizontal scan rate: 15.75 KHz. Text is fuzzy: 8 by 8 dot cell.

AT&T adapter: AT&T's model of the CGA adapter. CGA compatibility plus 640 by 400 pixel monochrome graphics.

EGA: Enhanced Graphics Adapter (IBM). Provides 640 by 350 pixel resolution at 21.8 KHz. 16 colors from a palette of 64. Text is okay: 8 by 14 dot cell. EGA cards contain from 64K to 256K of memory; more memory allows more colors at higher resolution.

Extended EGA: EGA-compatible boards also capable of 640 by 480 resolution. Made by companies other than IBM.

PGC: Professional Graphics Controller (IBM). Provides 640 by 480 pixel resolution at 30.48 KHz. 256 colors from a palette of 4,096. Not much software uses this standard.

MCGA: Multi-Color Graphics Array (IBM). Display standard for IBM's 8086-based PS/2 units. Equivalent to CGA but with an analog rather than a digital display plus a high-resolution monochrome mode.

VGA: Video Graphics Array (IBM). Provides 720 by 400 pixels for text and 640 by 480 pixels for graphics at 31.5 KHz. Can display 16 colors at high resolution, 256 colors (from a palette of 262,144) at 320 by 200 pixel resolution.

THE LURE OF THE ONLINE "BIG CITY"

Thomas Wolfe told us "You can't go home again." But for an estimated 500,000 people, that's exactly what takes place at 5 p.m. each evening when the bottom drops out of the phone rates: they "go home" by going online. Last month, in an effort to let those new to telecommunications know what was available to them, we looked at what you can expect from a local bulletin board system—the electronic counterpart of a small town.

This month we'll take a look at what you can expect to find when you push your cursor beyond the "city limits" of your local BBS and head for the online world's equivalent of the big city—the commercial information utility.

BRIGHT LIGHTS, BIG CITY

Commercial information utilities are the New York Cities of the online world. Urbane, witty, sophisticated, flashy, robust, obnoxious, thrilling, exciting—all of these adjectives aptly describe how an online session might strike you at any given time. Like any big city, commercial information utilities are filled with opportunities. They are, however, complex and predictably unpredictable.

Perhaps a definition is in order. A commercial information utility (CIU) is a fee-based, remote, online system that provides several types of online services under the umbrella of a single system. The cost of using such systems varies, but the range is approximately \$5.50 to \$12.50 an hour during non-prime time, depending on baud rate. The prime example of a commercial information utility is CompuServe, the grandfather of all CIUs.

Most CIUs offer the same basic services, including news, banking, shopping, weather reports, electronic mail, information retrieval, special-interest forums, games, a "chat mode," and software that you can download.

The heart and soul of a CIU are its special-interest forums. These forums break the CIU into smaller "neighborhoods," much like the neighborhoods that comprise a big city. And these forums are what hundreds of thousands of people are calling "home."



BY BROCK N. MEEKS

MY FORUM OR YOURS?

My dictionary defines the word forum as "a place or meeting where a public discussion is held." Online forums are nothing more than electronic versions of face-to-face forums.

*On a
commercial
information utility,
(CIU), a forum
functions like
a self-contained
bulletin board
system.*

On a CIU, a forum functions much like a self-contained bulletin board system. However, instead of being run by a single individual on a microcomputer, like a BBS, forums reside on the mainframe computers that make up the larger CIU.

CIUs are accessible via nationwide telephone links called "nodes." Most nodes are set up to be only a local phone call away. They function as a kind of nationwide electronic data superhighway,

speeding information between your desktop and the remote computers of the CIU.

The main advantage of these CIU-based forums is that the community of users is much broader than on your local BBS. A CIU-based forum draws users from throughout the country, and in some cases, throughout the world.

On CompuServe alone there are over 100 forums, called Special Interest Groups, or SIGs. Other names for electronic forums are "conferences," "roundtables," or "discussion groups."

A forum resembles a small neighborhood, but with a nationwide mindset. This simply means that although the user base is drawn from all parts of the country, each participant has the same interests in mind.

Take, for example, the Kaypro forum on CompuServe. Here you'll find information specific to the Kaypro computer, from CP/M-based Kaypros to the K2000 laptop. Thousands of Kaypro owners come together online each day to swap tales of their experiences using Kaypros and help each other solve problems.

Have a question about possible upgrades for your older Kaypro? Simply wander into the Kaypro SIG's "neighborhood" and ask your question by typing it into the forum's message base. Within hours someone will have an answer for you. Do you want to know how well the K2000 laptop holds up

under heavy traveling? Ask and you might get a response from one of the missionaries using it in the African bush. I know, because I asked that exact question myself.

Beyond general question-and-answer type information, there are various application stories bandied about. You can talk with hundreds of people using Kaypros in just about every imaginable situation. It's kind of comforting to log on and see that you're not alone.

RUMOR CENTRAL

What would a neighborhood be if it didn't have its share of gossip? These forums are no different. If you've heard a juicy rumor, chances are good that, wandering through a forum, you'll see that others have heard it too. Moreover, someone is likely to know the truth behind the rumor.

And like the neighborhood barber shop, a forum is a great place to pick up unsolicited recommendations; however, instead of recommendations on the best auto mechanic or the latest movie, you get opinions on the best half-height hard disk and personal hands-on software "reviews."

Inside these forums you can even browse through the "library" (database) and "borrow" (download) any of a thousand different public domain programs.

BEYOND TECH

But, suppose your interests lie outside the technical arena. No problem: there are hundreds of nontechnical forums, too.

For example, there are several professional forums where people can "network" with their colleagues. In these forums you'll find others grappling with their careers or businesses, just as you are. Medicine, law, education, public relations, and journalism are just a few of the topics of professional forums you can tap into.

Not only are these professional forums a great place to meet with colleagues, they are also a ready-made base of experts that you can tap into for information regarding a particular profession.

Suppose you'd like some basic guidelines on how to choose a lawyer. Where better to get such information than in a legal forum where hundreds of lawyers "hang out?"

The professional forums are also excellent "stomping grounds" for students of all ages. School-age kids can go right to the experts for interesting and vital information that will make a term paper sparkle with real-world examples, instead of rehashed information from an encyclopedia. And graduates can query working professionals about the job market and gain valuable insight into what the future might hold for them.

HOBBY HANGOUT

Some of the liveliest forums center on hobbies. A CIU is a veritable A-to-Z guide to hobbies—there are forums covering everything from auto racing to zoology.

Any dedicated hobbyist knows the value of timely information. A hobby-oriented forum is a great way to get the latest information. Often there will be someone in a hobby forum who is working on the "leading edge" of your avocation. Such information might take months to reach the newsstand in a specialized magazine; online, that same information is available in hours.

THE CRACKER BARREL

One of the most exciting things about participating in online forums is that you may get the chance to talk to the "big names" in a profession, industry, or hobby.

Often a forum will set aside a special night when a "guest speaker" is available to the users of the forum. This usually takes the form of a live, in-person online chat. This is a real-time forum where you can talk to the guest simply by typing in your questions on the keyboard.

The guest can see your questions instantly and can respond by typing answers at his or her keyboard. Several people can be online at once, and you have the benefit of reading others' questions as well as the guest's answers. By turning on a copy buffer, you can even store the entire session on disk for perusal

at a later time.

I've seen guests ranging from computer heroes (Steve Wozniak of Apple computer fame) to rock star legends (Paul Kanter, founding member of Jefferson Airplane).

BANG FOR YOUR BUCK

Online forums are, indeed, "just like home." Any regular user soon becomes part of the neighborhood, part of the electronic home town. Friendships develop, and a strong sense of loyalty often builds up among users of these forums. In fact, sociologists are beginning to study the strong bonding that takes place among electronic forum users.

But, as I've already suggested, the forums provide a lot more than camaraderie—they offer plenty of practical help in a wide variety of situations.

For example, in my own writing, I turn to these forums time and again for answers, anecdotes and advice regarding article assignments I'm working on. Often I'll simply "wander" into a forum I don't normally use, just to take a look around and ask a few questions. I always know I'll get an answer.

For example, when researching a story on electronic copyrights, I went right to a legal forum and just asked if any of the regular participants would be willing to talk with me about copyright law. Within hours I had three of the nation's top copyright lawyers inviting me to give them a call.

And when I wanted to help a private relief organization obtain a plane, I went to an aviators' forum to ask about the possibilities of leasing or buying a DC-3. The information I received was overwhelming and eventually led to the relief agency leasing a refurbished DC-3, which it later used to deliver food to Ethiopian famine victims.

The users of these two forums made me feel welcome. It was as if they were inviting me into their home, as a guest. And you know, that's exactly what they were doing.

With all due respect to Mr. Wolfe, I guess you can "go home" again. Can 500,000 people be wrong? Fire up your modem and find out for yourself. ■

THE HERCULES GRAPHICS CARD PLUS

There are many video adapters available for MS-DOS computers, and each one is suited to a different purpose. It used to be that if you used your computer for writing, nothing beat a good, old-fashioned monochrome display adapter (MDA). Nothing did, that is, until the Hercules Graphics Card Plus with RamFont was released in 1986.

Hercules created RamFont in hopes that software vendors would sell products that use it (that's how the microcomputer industry works: software sells hardware). Lotus Development Corporation complied. Lotus 1-2-3 uses RamFont to display graphs in the middle of spreadsheets and data in 90 rows by 33 columns. Lotus's scientific and engineering word processor, Manuscript, uses RamFont to display a variety of symbols from every branch of science.

However, Lotus was the only major software vendor to embrace RamFont until May 1988, when WordPerfect Corporation unveiled WordPerfect 5.0, the newest version of its popular word processing software. WordPerfect 5.0 takes full advantage of RamFont and should stimulate new interest in the Hercules Graphics Plus Card. For that reason, we'll take a fresh look at the card here.

We'll get into the details of how WordPerfect employs RamFont in a moment. But first, to better understand the Graphics Card Plus, let's take a look at what monochrome video is and the part Hercules has played in its evolution.

MONOCHROME AND HERCULES GRAPHICS

MDA offers one of the most readable screens available. It displays images in a single color, green or amber, with a text resolution of 720 by 350 pixels. MDA's high resolution produces characters that are flicker-free and very readable—ideal for text editing. Unlike color adapters, MDA displays underlined and boldfaced characters.

There are a few drawbacks to using MDA. For one, it doesn't do graphics. The text characters are wonderful, but pie charts, bar graphs, and bit-mapped graphics are not available. Also, when working with text, neither MDA, CGA



MARK SWEZEY

nor EGA adapters can display italics, superscript, or subscript.

The MDA debuted in 1981 along with the first MS-DOS computer, the IBM PC. After a year or so, it became clear that most people who had monochrome monitors wanted access to some form of graphics. To meet this need, Hercules Computer Technology, a California-based electronics company, created a product called the Hercules Graphics Card in 1982.

In addition to doing exactly what the MDA does, the Hercules Graphics Card has a monochrome graphics mode that displays bit-mapped graphics with a resolution of 720 by 348 pixels in four shades of a single color. Lotus 1-2-3 made use of that graphics mode, thus giving monochrome monitors a way to display charts and graphs. The rest, as they say, is history.

Sales of the Hercules card shot through the roof; to date 775,000 units have been sold. Instead of plunking down \$500 or more for a CGA board and monitor, you can pay \$150 for a Hercules card and have access to graphics with twice the resolution of CGA. Today the only successful video standard on the market that wasn't created by IBM is Hercules monochrome graphics.

Hercules wasn't content to rest on its laurels, though, so it improved its design and released the Hercules Graphics Card Plus with RamFont.

BY MARSHALL L. MOSELEY

FEATURES AND PERFORMANCE

The Hercules Graphics Card Plus is a 3/4-length video expansion board that replaces the IBM Monochrome Display Adapter and works in most IBM compatibles, including all Kaypro MS-DOS computers that have standard expansion slots. The Graphics Card Plus, which I will hereafter refer to as the Plus card, displays text in the standard way, as green or amber letters on a black background. It includes a parallel printer port, which can be disabled if you already have one installed.

The Plus card retains all the graphics abilities of the original Hercules product. I tested it with Microsoft Windows, Lotus 1-2-3, and Ventura Publisher. It operated without a hitch. With each software package the images produced were clear and crisp—better, I think, than those produced by an EGA monitor and board.

The feature that differentiates the Plus card from its predecessor is RamFont, which is a video operating mode that displays up to 3,072 different characters. RamFont characters can be either 8 or 9 pixels wide and from 8 to 16 pixels high. By comparison, the number of characters under standard MDA is 256, and they are displayed in one size, 9 by 14.

RamFont displays italic, superscripted, or subscripted text. Different size characters can be intermixed freely, providing a WYSIWYG (what-you-see-is-what-you-get) display (i.e. Figure 1). RamFont is

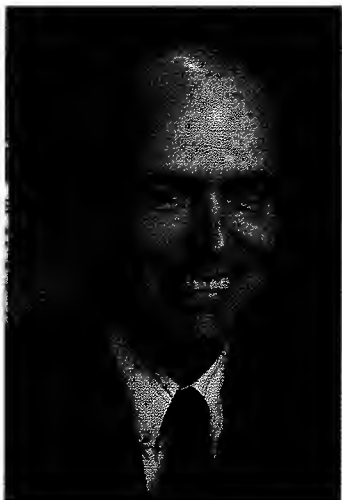
THE TROUBLE WITH WORD PROCESSING

The single most popular application for computers is word processing—many people use spreadsheets, quite a few use database managers, but almost everyone uses a word processor. And why not? People who work with written words have benefitted more from computers than almost any other group because word processors relieve them of the most tedious and uncreative parts of writing. That's why full-time writers talk about their computers with such affection and suffer the most severe anxiety at the thought of computer breakdowns. The writer and the computer are natural allies.

But if that's so (and it is), why do so many full-time writers still use the same systems they started out with? They stick with the aging Kaypro 2s, the plain vanilla Kaypro PCs, the elderly daisywheel printers that tick-tock along at 12 characters per second. They shuffle along with the most unexciting word processors—WordStar 4.0, WordStar 3.3, Perfect Writer, even Select. In fact, if you take the mass of people who spend most of their computer time writing (as opposed to typing), and you subtract the small group of technology junkies who happen to be writers (we know who we are, don't we?), then you end up with a large group of people using what is politely called "trailing edge" equipment. Why aren't these people, who have gained so much from computers, buying state-of-the-art word processing hardware and software—a Kaypro 286i or 386, a copy of Microsoft Word 4.0 or WordPerfect 5.0, a laser printer?

The answer is simple. Since the giant leap forward that came with the arrival of microcomputers and the early versions of WordStar and Perfect Writer, all the advances in computer hardware and software have done practically nothing for people who struggle to turn ideas into written words, whether they are professional writers, corporate managers, teachers, consultants, or whatever. Practically nothing.

Let's back up a step. Computers don't just store data; they *process* it. And despite all our talk about megabytes of RAM and gigabytes of disk storage, it's



GAIL GOODENOW

processing power we're after—the combination of hardware and software that lets us *do* something. Of the three major data processing applications—word processing, spreadsheets, and database management—word processing is the biggest, but it's far behind the other two in this most important function.

*Spreadsheets
and database managers
are thinking tools;
but word processors
don't help you
think.*

A spreadsheet relieves people of a lot of tedious clerical work, just as a word processor does. But it also lets you play "What if?" games so that you can test possible courses of action. It lets you look at your numbers in different forms and arrangements, including charts, graphics, and scatter plots. It helps you discover relationships among your bits of data, relationships you hadn't seen before. In short, the spreadsheet is also a processing

BY TED SILVEIRA

tool, a *thinking* tool.

The same is true of database managers—they, too, can become thinking tools. With a database manager, you can assemble a mass of information and then query it and cross-tabulate it seven ways to Sunday. Once again, it can help you discover relationships you hadn't seen before.

But word processors? Word processors don't help you think. Sure, a word processor saves time formerly spent in correcting and retyping, time you can now spend refining your words, and the sheer ease of making changes encourages people to rewrite more. But a word processor doesn't help you beat your ideas into a coherent shape; it doesn't help you see new relationships among your ideas, your assembled sentences, your paragraphs.

Word processors have developed just as far and just as fast as spreadsheets and database managers, so there's no denying that today's word processors are at least a generation beyond the early versions of WordStar and Perfect Writer. The new word processors pile feature on feature—high resolution color, true display of type fonts on-screen, graphics mixed with text, multiple columns, support for full-page monitors, downloadable type fonts for laser printers, built-in spelling checkers, and so on. All these things have their uses, important uses, but they all have to do with polishing and presenting your

writing, with making it look pretty on the screen and on paper. And what good does it do to make your writing look pretty if it still reads stupid? Or boring, or confused, or any of the other problems writers have to overcome?

*Maybe
someday hypertext
will turn out to be
a thinker's tool,
but not now,
not yet.*

These new word processors, fantastic as they may be, are developing in the wrong direction because they give all their attention to what Neil Larsen, creator of the MaxThink outliner, calls clerical tasks—correctness and presentation—instead of to thinking tasks—analysis, synthesis, organization.

So why not use an outline processor? Isn't that what they're for? I love outline processors and use them all the time, but they're relentlessly two dimensional. And in all important respects, they haven't advanced a step since they first came out, except, once again, to become more like word processors—better printer output, fancier screen displays, etc. The outline processors available in CP/M, OutThink and Thoughtline, both of which are several years old, can still hold their own with the MS-DOS crowd, which do just the same things, only more of them. And the so-called outline functions built-in to the newest word processors are a bad joke.

Where is the outline processor that understands more than two dimensions, that can deal with something other than a flat, tree-structured arrangement? Where is the program that understands that two entries in different branches of an outline may yet have a direct link to each other.

Life is not two dimensional, nor are ideas.

What about free-form text databases, programs like Tornado Notes or Free Filer? Great—these programs can find every piece of text on your disk that's related to some key word (or combination of key words) and then dump the bits and pieces in a big pile on your screen. But what do they do to help you make sense out of the pile, what do they do to help you figure out how they are all related? Zilch.

"I've got it, I've got it!" someone screams. "It's hypertext! He wants hypertext!" No, that's not it, either. Maybe someday hypertext will turn out to be a thinker's tool, but not now, not yet. The hypertext products that are beginning to appear (and we're talking about an industry that's practically prenatal) all seem to focus on marking out hypertext links in documents for *other* people to follow. Well, great, but where are the tools to help you *find* these links in the first place? Where are the tools to navigate through an uncharted sea of information tools to find relationships you haven't seen before? They're not here, not in today's hypertext.

And that's why so many writers who started out with simple Kaypro IIs five years ago still use the same machines, with their limited 64K memory, their cramped little single-sided disk drives, their non-color non-graphics and decidedly non-WYSIWYG displays, and their clunky typewriter-like output. If what you're trying to do is think—juggle ideas, make sense out of a mass of information, and express it all clearly in words—then all the advances in modern word processors (and the hulking 386 hotrods that drive them) are not much help.

So what is the ultimate tool for professional writers, managers, consultants, anyone who works with words and ideas? To me, it looks something like this:

Start with a good outline processor, something like MaxThink that already understands there's more to outline processing than simply arranging text on the screen. See that it has decent text editing, multiple windows, macros, a

spelling checker and thesaurus, and basic printing, but forget the desktop publishing and desktop presentation stuff. Instead, make sure it can create links between entries in more than two dimensions—three, four, even more. Then take the best graphics programmers you can get and turn them loose to find some new ways to *display* these relationships on the screen.

Combine that with a free-form text database tool, something that can suck up text from different word processor and database file formats and then search it backwards and forwards. It should do Boolean searches, proximity searches, and approximate matches ("There's only one paragraph with all five of your key words, but three paragraphs with four out of five words and seven with three out of five"). The search engine should work not just with regular disk drives but also with online information services, with CD-ROM and other optical drives, and with whatever other storage and retrieval media appear.

*The writer's
dream machine doesn't
even take much
imagination—all the
pieces already exist
separately.*

Next, add communications, something that will talk through a modem or a local area network to give you easy access to online information services, electronic mail, and your co-workers' computers. This section should have a sophisticated but easy-to-use scripting function so that you can automate repetitive procedures like logging on to a service, checking your mail, and transferring files in the middle of the night when rates are low. It should also be capable of working entire-

ly in the background, like Lotus Express, so that you can get on with your work while this electronic gossip is going on.

Top the whole thing off by building in a file translation facility that can swap files to and from all major text formats—especially word processors so that you can use their fancy features to make everything look pretty once you're done. If you want a cherry on top of the whipped cream, add the ability to import and display graphics as elements in your outline.

There it is, the writer's dream machine. It doesn't even take much imagination, because almost all the pieces already exist in various separate programs. But where's the design genius who will pull all the pieces together into one smooth program? And where's the marketing genius who will realize how *big* this potential market is, so big it dwarfs the desktop publishing and desktop presentation markets?

If someone created this product, I'd buy it in an instant, even if it meant buying (with my own money) a whole new computer to run it on. It could be a true breakthrough product, a piece of software that actually sells hardware, just like VisiCalc sold Apple IIs. Software companies talk about looking for the "next VisiCalc," but they're all looking in the wrong direction.

HOT HARDWARE NOTES

MS-DOS users usually get all the hardware action, but this tidbit's for CP/M users.

A constant problem for computer users and manufacturers is interfacing computers to various peripheral devices, particularly storage devices—big hard disks, tape back-up systems, CD-ROM drives, WORM drives, and so forth. One system that's rapidly growing in popularity is SCSI (pronounced "scuzzy"), which stands for Small Computer Systems Interface, along with ESDI, an advanced variation of SCSI.

There are many nice things about SCSI, but three stand out immediately. First, it can handle a fairly high rate of data transfer. Second, it makes interfacing peripherals much easier and more flexible.

To oversimplify a bit, when the computer starts up, it interrogates the SCSI port, and any SCSI device, such as a hard disk, attached to the port, replies by telling the computer what it is and how it's set up. You *don't* have to reconfigure or reprogram the port every time you connect a new device to it. And third, you can daisy-chain SCSI peripherals, connecting a number of them to a single SCSI port instead of using a separate port and connector for each one.

SCSI and ESDI are growing fast and are likely to become the favored method of attaching laser disc players, big hard disks, tape drives, CD-ROMs, and other major peripherals. SCSI already dominates the scene in the Macintosh and Atari ST worlds, and it's making inroads in MS-DOS now, too.

Well, as it turns out, all the '84 model Kaypro CP/M computers (the ones with two serial ports and one parallel port on the back) have this unused 50-pin connector on the main circuit board. And the connector seems to be a SASI (Shugart Associates System Interface) connector, which is the immediate predecessor of SCSI. Is it possible that that this SASI connector could be adapted for a SCSI port? Is anyone interested in finding out?

At least one person is—Bill Nesting of High Tech Research. High Tech, maker of Handyman (a hardware SideKick for CP/M machines) and the K20 (a hot-rodded hard-disk CP/M Kaypro) has been very low-profile recently, after running into various nightmares while developing the Z280-powered Ultraboard for CP/M Kaypros. To keep the cash flowing, High Tech has been developing SCSI (actually ESCI) hard disks for Atari STs and Macintoshes. After becoming intimately familiar with SCSI and ESDI, Nesting remembered the mysterious connector on the '84 Kaypro boards, realized what it might be, and was last seen heading for the workbench, screwdriver and probe in hand.

After all, wouldn't a Kaypro 2 or 4 make a nice dedicated workstation/controller for a multi-gigabyte CD-ROM information retrieval system? It's flexible, reliable, and, most of all, cheap. H'mm.

with Plus card are completely and professionally documented.

The last portion of the manual is a technical reference filled with charts, graphs, and information for programming in Hercules graphics and RamFont modes. Programmers will find this quite useful.

On the whole, I found the Plus Card's manual to be well written, concise, and informative.

As for support, nowhere in the manual could I find a technical support telephone number, nor could I find a general number for Hercules. I finally threw the book down in disgust and there, on the back cover, was Hercules' address and phone number. They could have found a better place to put it. I called the number and asked for technical support. In a few moments I was talking to a technician, who answered all my questions quickly and competently. Once I got to it, the technical support was excellent.

CONCLUSION

The Hercules Graphics Card Plus is not for everyone, but it does offer something to everyone. Hercules graphics is supported industry wide and is one of the highest-resolution modes available. The Plus card is 100 percent MDA compatible. And if you spend your computer time writing, nothing I've seen beats the combination of RamFont and WordPerfect 5.0. Graphics, compatibility, and an innovative new text mode make the Hercules Graphics Card Plus an excellent choice in a video adapter.

SCORECARD

Features: Excellent
Performance: Excellent
Documentation: Very Good
Ease of Use: Excellent
Error Handling: Excellent
Support: Very Good

QUICK REFERENCE SUMMARY

Product: The Hercules Graphics Card Plus
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User Groups

Learning to operate a computer is not easy — everyone needs help at one time or another. This is precisely the reason why user groups were born.

Basically, a user group is a collection of computer owners and users who learn from each other. These are non-profit membership organizations devoted to making life with a computer easier.

Almost every computer brand and operating system has user groups that support it; many groups are a mixed bag. For example, owners of many different brands of computers find they all use the same operating system, and therefore, have some common ground.

Most user groups have members with a wide range of expertise and experience — from absolute beginners to those who have "working" knowledge to people who are "power users." Often people's expertise breaks down into types of software applications — word processing, data base managers, spreadsheets, telecommunications, etc. Perhaps more often, a member's knowledge is specific to a particular piece of application software.

The bottom line is that user groups are a veritable goldmine — and the mother lode is information; no one is an expert overnight, and no one does it alone.

KUGs

For those readers who own Kaypro computers, Kaypro User Groups (KUGs) exist in every state, in Canada, and in countries all over the world. To find the KUG closest to you, write to Fred Zuill, KUG Manager, at Kaypro Corporation, 533 Stevens Avenue, Solana Beach, CA 92075; (619) 481-4368 (voice). Be sure to include your zip code.

Fred Zuill also maintains a BBS — the Kaypro Online — for the exchange of information and help. It contains a message section, as well as lots of public domain software for both the CP/M and DOS operating systems. Public domain programs mentioned in *PROFILES* can also be found there. The system is online 24/hrs, 7 days a week, and can run at 300/1200/2400 baud.

Kaypro Online — (619) 259-4437

Do you ever need to print something fancy with your dot-matrix printer—some type that's bigger than your double-width, a font that's more elaborate than your near-letter-quality, a near-letter-quality that isn't an embarrassing great distance from letter-quality? Caps and small caps, perhaps? Real proportional spacing or any of a dozen other options?

If that sounds interesting, you should look into Bradford, a recently released print-formatting program for CP/M machines. Bradford works with Epson MX and FX printers, Star Gemini 10 and 15 series printers, and IBM Graphics printers.

Since most dot-matrix printers emulate one or more of these, chances are that Bradford will work with what you have. I tested it with a Panasonic KX-P1091i, which supposedly emulates an Epson RX printer. I installed Bradford for an MX, since the program doesn't have an RX mode, and it worked exactly the way it was supposed to.

Bradford can set your text in any of 15 different fonts, with up to five fonts on any single line. It can justify, center, and set your text flush left or flush right. It handles margins, headers, footers, underlines, double underlines, superscripts, subscripts, and just about everything else you might want to specify about your print-out.

Bradford is shareware—you can try it before you buy it, which is the best way of making sure it will work with your computer and printer. The registration fee is \$25, which gets you a printed manual. If you want to be assured of getting disks with the latest version, it's \$39.95. You can get it from Concom Enterprises, P.O. Box 5056, Champaign IL 61820.

The easiest way to understand Bradford is to think of it as a vast expansion on WordStar's print-formatting commands. With WordStar, you specify margins and the like with its notorious "dot commands." You change fonts by embedding control characters in the text—boldface, for instance, is a ^B in the stream of characters that WordStar stores. When it's printing time, WordStar sees the ^B and sends the appropriate commands to the printer to start and stop the boldface.

FANCY PRINTING WITH A NEW (?) CP/M PROGRAM

BY ED QUILLEN

Bradford works much the same way, except it's much more versatile. You use dot commands or certain character sequences to make the printer perform in certain ways. To center text, for instance, you can use a dot command, ".STC" at the start of a line.

Instead of using control characters like WordStar, Bradford starts its commands with a backslash, followed by instructions and then a space. To print the formula for water in the cap-and-small-cap font, you'd have this sequence in your text:

```
\ fnsmlcap Water is H\sub 2\su0 O
```

The output in Figure 1 was produced with this text file:

```
.hm2
.stc
.fnpizza2
Your Little
\ ul1 Dot-matrix Printer\ul0
\ fnjazzh can do
\ fnchart2 \ ul2 Amazing Things\ul0
\ fnsmlcap With
\ fnselect2 \ dk3 Bradford 2\dk0
\ fntype E=MC\ sup 2\su0 \fngreek
Xaris
```

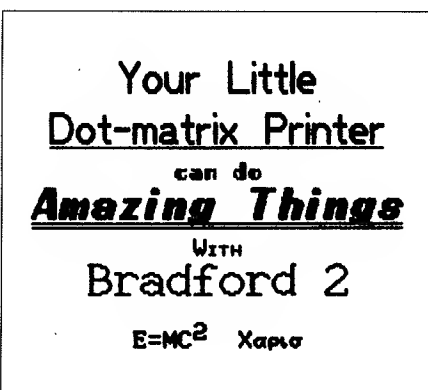


FIGURE 1

Do note that Bradford isn't a text editor.

You don't enter or create text with Bradford. All Bradford does is send to the printer a file of text that has been prepared with another program. You can prepare text for Bradford with WordStar or with any editor that will make an ASCII file. Once you've save the file (EXAMPLE.TXT, for instance), you leave your editor. When you're back at the system prompt, you give a command like this:

```
AO > BRADFORD B:EXAMPLE.TXT
```

Moments later, your printer will start whirring. Bradford isn't any speed demon—pages typically take several minutes because no printer runs all that fast in its graphics mode, which is what Bradford uses.

You can also set up various "header" files that specify the margins, font, etc., for a document. This header can be specified on the command line, so that you don't have to change the document file. Bradford understands a lot of WordStar's formatting commands, too.

I found Bradford in the word-processing section of the Compuserve CP/M forum. As of last June, there were four files that concern Bradford, and I was a bit confused at first.

BRAD2A.LBR, BRAD2B.LBR, and BFUPD1.LBR are all "library" files that must be extracted and expanded before you use them; the utility NULU15 did the job for me.

BRAD2B.LBR has the fonts. You definitely need it.

BRAD2A.LBR has a brief manual, enough for you to do useful things while giving the program a fair trial—if you want to learn all the ins and outs of Bradford for extensive use, you owe it to the author and your conscience to buy the program with its complete manual. This file has Version 2.01 of Bradford. That

version has a few bugs, and it takes considerable memory—when I tried to load it on a stock Kaypro 10 '83, the screen told me that there wasn't enough memory.

BFUPD1.LBR contains Bradford 2.02, which doesn't take as much memory. It also has drivers for the Epson MX printer and the IBM printer, and a brief explanation about the update.

*If you
need more than
plain-vanilla output
from your dot matrix,
chances are you'll like
Bradford.*

To give Bradford a fair test, you need all three of these. Just use BRADFORD.COM from BFUPD1.LBR in place of the BRADFORD.COM in BRAD2A.LBR.

The other file I mentioned, BF2TNY.COM, is a version of Bradford that requires only 52.3K of memory. But it handles only 100 characters per line. If Bradford 2.02 will run on your machine, you don't need this one.

These files are also available on Kaypro Online Bulletin Board at (619) 259-4437.

New CP/M software is a rarity these days, and good software, distributed sensibly and sold at a reasonable price, is always welcome. Give it a try; if you need anything besides plain-vanilla output from your dot-matrix printer, chances are you'll like Bradford enough to buy it.

NEWCOMER

As you may have noticed, Ted Silveira did not write this "CP/M Only" column. He's moved on to other things, and I'll be writing it for a while.

What's there to write about?

There are some topics I plan to cover in the near future—public-domain and shareware, specifically text editors, telecommunications software, and programming languages. I'll also cover the Ad-

vent Turbo ROM, which gives you more free memory, easier access to various user areas, and many other useful features.

Beyond that, though, I'm open for suggestions. I'd like to hear from you if you have any tips that make your Kaypro CP/M machine more useful. Let me know if you know of some great public-domain programs that haven't been mentioned recently. Tell me if you know of some good commercial software recently released for CP/M. If there's a hardware enhancement that you think other people should know about, pass it on.

There isn't much in the way of commercial support for CP/M these days, so those of us who use it have to look out for each other.

You can reach me care of *PROFILES*. On CompuServe, I'm 73327,544, and on GENie, I'm E.QUILLEN. To the U.S. Postal Service, I'm at P.O. Box 548, Salida CO

81201.

As for what you're getting: I'm a full-time freelance writer. My first computer, was an Osborne. I used that CP/M machine hard for two years: three books, scores of newspaper columns, dozens of magazine articles, and the associated bookkeeping and data-base management, along with some programming.

There have been other computers since, including a Kaypro PC. But the CP/M machine on my desk (a Kaypro 10) still does the things that most people need computers to do when they're running a small business.

It's good business to get the most out of an existing investment; your investment in computers isn't just money, because you've also put plenty of learning time and you have stored a lot of data. The idea behind this column is to make sure we get the most from our investments. ■

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When the history of PC software is finally written, few programs will qualify as bona fide legends. Certainly, SideKick will be among these—popularizing, as it did, an entire category of TSR (terminate-and-stay-resident) programs for the MS-DOS environment.

Now, Borland International has revamped its best-selling program. SideKick Plus is a multi-function TSR program that enhances many features of the original SideKick—which Borland will continue to sell—while adding several impressive functions its forerunner lacks.

SideKick Plus runs on IBM PC/XT, AT, PS/2 or compatible machines with a hard disk. The program requires 384K of RAM and DOS 2.0 or later. SideKick Plus supports all popular display modes. A Hayes-compatible modem is required to take advantage of the program's Phonebook features.

FEATURES AND PERFORMANCE

The original SideKick combined five major applications—notepad, calculator, calendar, phone directory, and an ASCII table—into a single, memory-resident “desktop organizer.” Even more important, it placed each of these functions literally at the fingertips of PC users. Using an undocumented function of DOS, SideKick allowed you press a user-defined “hot key,” work in one or more of the SideKick environments, and then resume your original application exactly where you had left it. In this way, SideKick provided a primitive alternative to true multi-tasking, which DOS did not then—and still does not—support.

In the four years since its initial release, over a million copies of SideKick have been sold. If you add to this figure the copies distributed through OEMs and included in promotional packages, the number of SideKick users out there must certainly tip the scales at well over two million. Borland is hoping to duplicate this success with SideKick Plus.

New features in SideKick Plus include Outlook (an outline processor), as well as a rudimentary DOS gateway and file manager. One major addition to SideKick

SIDEKICK PLUS AND DOSDISK

BY JACK NIMERSHEIM AND JOSEPH I. MORTENSEN

Plus is its ability to support future enhancements and add-ins from both Borland and third-party vendors. More on this later. In addition to adding these new features, Borland has also redesigned each of SideKick's original functions for enhanced performance and improved integration. Users of the old Sidekick may notice that the new program is slower, but it's a small price to pay for the new and enhanced features.

*One
major addition to
Sidekick Plus
is its ability
to support future
enhancements.*

SideKick's Notepad text editor survives virtually intact, with one major exception: SideKick Plus allows you to have up to nine Notepad files, each of which can contain approximately 11,000 words (54KB) of text, open and ready for editing at any given time. “Cutting and pasting” between Notepad windows—indeed, across SideKick Plus functions or even between non-graphic DOS applications—is as straightforward as ever. Notepad still uses the venerable WordStar command key sequences and is a breeze to learn for anyone familiar with that program. Operationally, of all the original SideKick modules, Notepad is the least changed.

By comparison, the Calculator function

is familiar in name only. Gone is the “pocket calculator” metaphor popularized by the original SideKick. Rather, SideKick Plus supports four separate calculator modes: business, scientific, programming, and formula calculations. In another break with the past, SideKick Plus now generates a scrolling “tape” display of all calculations performed in Calculator. This electronic tape is actually a Notepad file, which can be edited just like any other note. You can cut and paste sections of this tape “printout” into other SideKick windows or even your primary application.

Perhaps the most improved program in SideKick Plus, however, is its Phonebook. The dialer in the original SideKick resembled nothing so much as it did a glorified Rolodex, allowing only minimal control over your communication needs. SideKick Plus's Phonebook, by contrast, qualifies as a true telecommunications program. Whereas the original SideKick only supported 300-baud auto-dialing and connection to COMM ports 1 and 2, SideKick Plus supports true asynchronous transmission at speeds up to 9600 baud. Phonebook can now be configured to address COMM ports 3 and 4. This is a godsend if, as is the case with my system, your first two COMM ports are dedicated to less flexible peripherals and their drivers. I just said goodbye to one A/B switch.

Additionally, Phonebook supports macro scripts to automate calling regularly used information services or bulletin boards and even file downloads. The SideKick Plus script language includes a “learn” mode, in which a macro is recorded during execution for future use or editing.

A redesigned data-entry screen simplifies adding new phone numbers to the

phone directory. As in the original SideKick, you can specify an "index code" to quickly find and dial specific numbers. SideKick Plus's dialer even supports background communications. All in all, this improved Phonebook represents a major upgrade from the simple "point-and-dial" approach of the original SideKick.

The calendar function in SideKick Plus also has been treated to a major upgrade. This module, now called the Time Planner, supports multiple alarms to remind you of important appointments, and daily appointments can be "tagged" with notes outlining your planned activities.

Speaking of outlining, Outlook is the most impressive of SideKick Plus's new functions. Admittedly, Outlook is not as adroit at creating structured outlines as some dedicated outline generators on the market. For example, Outlook does not support the automatic formatting of topic levels. Rather, you manually indent your topics to preset tab positions. Once an outline does exist, however, Outlook offers some creative options for viewing its contents.

Pressing the numeric keypad <Minus> key while an outline is displayed automatically hides all text positioned at the rightmost tab stop. By repeatedly pressing this key, therefore, you can view an increasingly abbreviated version of your original outline until, ultimately, only its main points are visible. Conversely, pressing the numeric keypad <Plus> key reinserts any previously hidden lower-level topics. It's an elegant way to analyze the underlying structure of your outlines.

Especially welcome is SideKick Plus's inclusion of a File Manager module. This is a memory-resident DOS gateway that gives you access to a wide variety of DOS functions from within application programs. How many times, for example, have you gone to transfer a file to a floppy drive only to realize you had no formatted disks available? With File Manager, this is no longer a problem. Simply hit SideKick Plus's hot key, select File Manager, format the disk, and complete your save operation, all without ever leaving your original application.

What could be simpler, or more convenient?

Perhaps most important is the fact that SideKick Plus represents only an initial step toward creating a comprehensive memory-resident operating environment. As I mentioned earlier, SideKick Plus is designed to accept planned Borland enhancements, and even add-in modules from third-party vendors. Programming specs are available on request from Borland. Expect a wide variety of additional SideKick Plus applications to begin entering the market shortly. The ultimate consequence of this is that soon you'll be able to design a SideKick-based TSR operating environment customized to your specific needs.

DOCUMENTATION AND SUPPORT

As Marshall Moseley pointed out in a recent article on Quattro ("At A Glance," March 1988), Borland has developed a well-deserved reputation for providing concise, professional user documentation. The 400-plus page Owner's Handbook that accompanies SideKick Plus continues that tradition. The handbook and the program's context-sensitive Help function make learning and using SideKick Plus virtual child's play.

Should you ever have a problem, Borland publishes a SideKick Plus hotline phone number on a special insert sheet included in the SideKick Plus package. The call itself is not free, but the technical support is; one out of two, though not ideal, isn't bad. This insert sheet also contains instructions on how to access the User Forum through either CompuServe or the Byte Information Exchange (BIX). (This information is repeated in the introductory chapter of the Owner's Handbook.) As usual, the Borland support personnel assigned to SideKick Plus know their product and are courteous in their responses.

SUMMARY

If you swear by the original SideKick, as millions do, then SideKick Plus is a "must-have" item: Borland has yet to release a disappointing product; it can now add SideKick Plus to its impressive software lineup.—J.N.

SCORECARD

Features: Excellent
Performance: Very Good
Documentation: Excellent
Ease of Use: Very Good
Support: Very Good

QUICK REFERENCE SUMMARY

Product: SIDEKICK PLUS
Manufacturer: Borland International
4585 Scotts Valley Drive
Scotts Valley, CA 95066
Phone: (408) 438-8400
Sugg. List Price: \$199.95
Hotline Number: 750-53

DOSDISK

Shuffling files between CP/M and MS-DOS applications has always been a headache—up to now, that is. Thanks to Plu*Perfect Systems, you can now commute between operating systems in a fast, dependable vehicle. DosDisk, an MS-DOS disk emulator for CP/M, makes the trip so simple you wonder why no one thought of it before.

DosDisk gives Z80 computers, including Kaypro CP/M machines equipped with Advent's TurboRom or KayPLUS ROM from MICROCode, direct use of files stored on 360K MS-DOS floppies. Forget about transferring files between incompatible formats with Uniform or MediaMaster. Run DosDisk to set drive B to DOS mode, insert an MS-DOS diskette, and run WordStar or other CP/M applications as usual. Use CP/M's built-in commands (DIR, TYPE, ERA, REN) with the MS-DOS disk. Copy files with PIP. Do almost anything you'd do if the diskette were CP/M. The one thing you can't do is run MS-DOS programs on your CP/M Kaypro. DosDisk comes pre-configured for many Z80 and compatible computers. A kit version—for the technically adept—is supplied if you need to adapt DosDisk to your system.

FEATURES AND PERFORMANCE

DosDisk temporarily makes one of your disk drives act like a standard MS-DOS double-sided, double density drive. With an IBM-compatible diskette in it, you can read, write, rename, erase, create, and even change attributes of files. If you

have DateStamper, QP/M, or CP/M 3.0, you can time-and date-stamp the MS-DOS files. With DosDisk's sister program, DOSCD, you can even handle MS-DOS's subdirectories.

Say you are writing a report with WordStar at work, where MS-DOS is spoken. Five o'clock comes, but you're not done. You promised to get to your daughter's soccer game at 5:30. No problem. Take home the MS-DOS diskette with your report on it. After the ball game, start your CP/M Kaypro, insert the DosDisk diskette in drive A, and enter:

DOSDISK B:

The drives whirl until a screen message signals that DosDisk is installed. Run WordStar as usual, log onto the DosDisk drive in which you've inserted the MS-DOS diskette, open the file you started at work, and pick up where you left off. Take the finished report to work in the morning. It won't know or care which machine you've used. You'll notice little difference yourself, except for longer disk accesses on the MS-DOS drive.

DosDisk remains active until you either reset or turn off your computer or deactivate it with any of the following commands: DOSDISK OFF, DOSDISK CPM, or DOSDISK CP/M.

Three utility programs accompany DosDisk. DOSCD changes, creates, and deletes subdirectories, like the CHDIR, MKDIR, and RMDIR commands in MS-DOS. DATSWEEP, a DateStamper file maintainer, and SDD, a Super Directory for DateStamper, complete DosDisk's ensemble. DATSWEEP works correctly only with Plu*Perfect's DateStamper.

DosDisk does what it claims to do and does it well, but its ease and comfort don't come free. First, you must replace your Kaypro's monitor ROM with Advent's TurboRom or MICROCode's KayPLUS ROM. (TurboRom was supplied for this review.) Second, your computer needs at least one double-sided, double density drive.

Third, you must fork over at least 7K of RAM. DosDisk takes 4.75K and preserves the CCP (console command processor)—subtract 2K more. 64K Kaypros must be

changed to 63K to accommodate TurboRom—subtract 1K. So much RAM loss means memory hogs like Checks and Balances, Bradford 2.0, OutThink, and ARK02 won't run with DosDisk. Nor can you have XtraKey or SmartKey and DosDisk active simultaneously and have enough RAM left for many applications.

Perfect Writer and WordStar 3.3 (not 4.0) will handle both DosDisk and XtraKey (install DosDisk first). Just enough RAM remains to run WordStar 4.0 with DosDisk alone. Turbo Pascal can handle DosDisk and XtraKey together, but you pay with drastically reduced free memory. In-memory compilation won't work except for very short programs.

Fourth, DosDisk works reliably only with diskettes formatted on MS-DOS computers. A diskette initialized with Uniform to MS-DOS format on my Kaypro worked with DosDisk on the CP/M end but failed on the MS-DOS machine.

Fifth, some CP/M programs don't work with DosDisk. NULU won't run, but LU and VLU will. SuperZap gets lost in DosDisk, but SODU can find its way. Versions of EX prior to 1.4a and ZEX before 3.1a won't work, nor will UNERASE and VDE 2.62. Turbo Pascal programs compiled to absolute memory sizes crash unless recompiled with DosDisk present. Background and Background ii can co-exist with DosDisk, but not if you suspend or swap tasks.

DOCUMENTATION AND SUPPORT

DosDisk's manual, 38 typeset (not bound or stapled or punched) pages and the file RELEASE.NOT on the distribution disk provide adequate documentation. An opening chapter describes DosDisk, its hardware needs, and its limitations. Sections on running the program, managing subdirectories, and using date-stamping functions are clearly written. Novices need not fear.

For the technically curious, the manual unveils DosDisk's secrets and how CP/M accommodates an alien disk and file format. An appendix—strictly for folks at home with assembly language—tells how to adapt DosDisk for a particular CP/M machine.

No telephone number for technical support is listed in the manual, and I don't know why not. I tracked down the author by telephone when I had a question and found him most helpful.

SUMMING UP

DosDisk's advantages come at a price—most of it in RAM—but if you must shuttle between CP/M and MS-DOS, go via DosDisk. Even if you have to shell out extra for TurboRom or KayPLUS, you'll find the vastly improved ride and ease of handling well worth it.—J.M.

Jack Nimersheim is an independent computer consultant and writer living in Covington, Kentucky. Joseph I. Mortensen is a freelance writer from Midland, Michigan, where he serves as pastor of the First Baptist Church.

SCORECARD

Features	Excellent
Performance	Excellent
Documentation	Very Good
Ease of Use	Excellent
Support	Good

QUICK REFERENCE SUMMARY

Product: DosDisk MS-DOS Disk Emulator for CP/M

Manufacturer: Plu*Perfect Systems
410 23rd St.

Santa Monica, CA 90402

Phone: (312) 395-4584

Sugg. Retail Price: Pre-configured version, \$30; kit version, \$45; manual only, \$5; with BSX and RSX (for SB180 computers), \$35

Hotline Number: 751-53

Product: TurboROM

Manufacturer: Advent Products, Inc.
3154 E. LaPalma Ave., Suite F
Anaheim, CA 92806

Phone: (714) 630-0446

Sugg. Retail Price: \$59.95

Hotline Number: 752-53

Product: KayPLUS ROM

Manufacturer: MICROCode Consulting
(available from Emerald Microware, P.O. Box 1726, Beaverton, OR 97075)

Phone: (503) 641-0446

Suggested Retail Price: \$69.95, \$115 with QP/M

Hotline Number: 753-53

The NEC MultiSync was the first multiscan monitor. It remains the standard by which such monitors are judged. Like its predecessor, the MultiSync II produces sharp text and graphics in vibrant colors. No matter what color combination you use, you won't find colors running together or rainbows hiding behind your text. You need to keep the brightness and contrast up, however. Otherwise colors become muddy and green fades to brown. Dot pitch is .31—adequate, but not the best.

Controls for brightness, contrast, and horizontal and vertical holds are easy to reach on the front of the unit. The power switch is also in front. The monitor comes with a sturdy tilt-and-swivel stand. You get a switch to toggle color on and off, plus a switch to choose amber, green or white monochrome text. You can't get a black-on-white display in text mode, however.

Unlike its predecessor, the II works with both MDA and HGC display cards. It automatically adjusts for VGA's analog output.

It switches between VGA text and graphics modes without a hitch. The VGA screen is a bit cloudy, however, as if covered with a soft white veil. The screen is not recessed, so there is a lot of glare.

The MultiSync II lists for \$899 and is available at discount. If you like the monitor but don't like that price, you can get a MultiSync GS for \$279 list. It provides up to 64 shades of gray in place of color images. It works with every standard graphics board. Monochrome jockeys, take note.

LAST WORDS

That's all I can do for you here. You'll have to test drive these things for yourselves. Whatever you do, happy computing! □

Jim Spickard is a sociologist and an independent computer consultant. He lives in Aromas, California.

THE LANGUAGE OF MONITORS

Adapter card: A circuit card that controls the monitor's display characteristics. There are various types: see the box on page 53.

Aspect ratio: The ratio of screen width to height. A 4-to-3 ratio (640 by 480 pixels) displays square-pixel graphics undistorted on the screen.

Analog display: Regulates colors by variations in voltage level. Can produce a near-infinite variety of colors.

Bandwidth: The rate at which an electron gun can turn on and off. The faster the better.

Capture range: The breadth of frequencies handled by a given multiscan monitor.

Color monitor: A monitor capable of displaying colors. The colors are formed by exciting red, blue and green phosphor dots in various combinations and strengths.

Character cell: A character cell is a rectangular area, composed of individual pixels, into which a character is drawn. The standard video display in text mode has 2000 character cells (25 rows of 80 cells each).

CRT: Cathode ray tube. The component that produces the picture. An electron gun bombards the viewing screen with a thin beam of electrons, which makes the screen's phosphor coating glow. (Yes, it's pointing right at you.)

Digital display: Regulates colors by assigning each a number. Can only display a limited number of shades. Also called **TTL display**.

Display adapter: See **adapter card**.

Display area: The amount of space on the screen actually used by the video image. Less than the **screen size**, sometimes by a lot.

Dot pitch: The distance between phosphor dots on a color monitor screen. The smaller the dot pitch, the tighter the image appears.

Flat screen monitor: A flat-faced monitor, currently made only

by Zenith. It produces brighter colors with less glare than curved monitors.

Graphics adapter: see **adapter card**.

Horizontal scan rate: The speed at which the electron beam crosses the screen, measured in KHz. Usually ranges from 15 to 35 KHz. Higher scan rates mean better resolution.

Interlacing: An inexpensive technique for increasing screen resolution by refreshing horizontal scan lines alternately: odd lines are scanned, then even. Can result in flicker.

Monochrome monitor: A monitor that displays text and/or graphics in one color only.

Multiscan monitor: A monitor capable of sensing and matching the scan rates used by your adapter card.

Pixel: The minimal screen unit used by a given display adapter. High resolution adapters display more pixels per line. Square pixels (see **aspect ratio**) produce truer graphics.

Refresh rate: See vertical scan rate.

Resolution: The number of dots on the monitor screen. The more dots, the sharper the picture.

Scanning Frequency: See **horizontal scan rate**.

Screen size: The overall size of the CRT, measured from corner to corner.

Shadow mask: A metal screen on the inside of the CRT that directs the electron beams to the right phosphor dots on the screen. Used only in color monitors.

Text switch: A switch to toggle a color monitor between color and monochrome modes.

TTL display: Transistor-transistor-logic. See **digital display**.

Variable scan monitor: See **multiscan monitor**.

Vertical scan rate: The rate at which each frame of the display is redrawn. Typically 60 Hz (60 times a second) in the U.S., 50 Hz in Europe.

QUESTIONS TO ASK YOURSELF

1. What kind of work am I going to do?

Check all that apply:

a. text-oriented word-processing, spreadsheets, and database management _____

b. graphics-oriented word-processing, spreadsheets, and database management (e.g.: Microsoft Word, WordPerfect 5.0, spreadsheet graphs, etc.) _____

c. other graphics-oriented programs (e.g.: statistics, painting, slide presentations, etc.) _____

d. Desktop publishing _____

e. Computer-aided design _____

(If you only checked "a," your present display is probably adequate. If you checked "d" or "e," consider an extra-large-screen or extra-high-resolution system. Otherwise choose HGC, EGA or VGA. If you checked only "c," CGA may be adequate.)

2. Do I want color or monochrome?

I want color if I need to:

a. prepare slide presentations _____

b. prepare designs for a color plotter _____

c. paint _____

d. be especially easy on my eyes _____

(Otherwise a monochrome monitor will do. Monochrome black-on-white is the best for desktop publishing.)

3. How much can I afford to spend? (For monitor and card.)

a. \$350-400 (monochrome) _____

b. \$450-500 (CGA) _____

c. \$700-1,000 (EGA) _____

d. \$1,000-1,200 (multiscan EGA) _____

e. \$1,500-2,000 (multiscan VGA) _____

f. \$1,000-3,000 (special purpose) _____

4. Do I eventually want to move to VGA? _____

(If you can't afford VGA now, buy a multiscan monitor and save for a VGA card when prices fall.)

QUESTIONS TO ASK YOUR DEALER

1. Video standards supported: (circle)

MDA HGC CGA EGA VGA

PGC MCGA extended-EGA

2. Will it run all my software? Yes No

3. Screen image:

a. Clean, easily readable text _____

b. Squares square, circles circular _____

c. Screen image easily centered _____

d. Clear, vibrant colors _____

e. Colors don't bleed at edges _____

f. Colors stay true at different brightness, contrast _____

g. Switches video modes without problems _____

3. Ergonomics and safety:

a. FCC Class B certification _____

b. Radiation level okay (color monitors) _____

c. Controls easily accessed _____

d. Toggle switch to monochrome _____

e. Choice of monochrome color (amber, green, black-on-white, etc.) _____

d. Minimal glare _____

e. Tilt-and-swivel stand included _____

4. Reliability:

a. Warranty period _____

b. Dealer support _____

c. Toll-free manufacturer's support line _____

d. Typical failure rate _____

5. May I test it in the store?

a. With the software I typically use? _____

b. On my computer (if I bring it in)? _____

6. May I trade in my current monitor/card? _____

NEW PRODUCTS

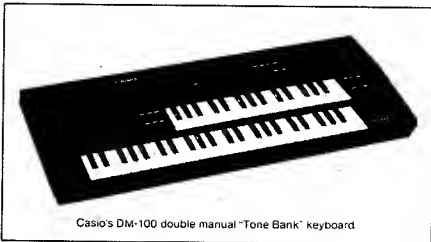
BY TONY EVANS

The following new product listings are not reviews and should not be considered endorsements. To be considered for publication in this column, press releases should be sent to Tony Evans, New Products Editor, c/o *PROFILES* Magazine, 533 Stevens Ave., Solana Beach, CA 92075. Releases must state prices and the operating systems supported by the products. Please include photos if available.

CASIO MIDI KEYBOARDS

Casio offers several new "Tone Bank" keyboards for use with MIDI interface-equipped computers. The unique tone layering capability of these keyboards gives the musician a wider variety of sound choices than earlier Casio products.

The MT-240 (\$199.50) is Casio's lowest-priced keyboard, with 49 mid-sized keys, dual speakers, real-time memory, and a MIDI in/out interface. This allows the keyboard to be connected to MIDI-equipped personal computers, as well as other keyboards or sound modules.



Casio's DM-100 double manual "Tone Bank" keyboard

The DM-100 (\$329.50) is a double manual keyboard with a 32-key upper keyboard and a 49-key lower keyboard. The DM-100 boasts a MIDI connector, two built-in speakers, and an integral microphone for sampling sounds.

The CT-640 (\$399) has 61 full-sized keys, 30 PCM instrument sounds, a MIDI connector, and dual speakers with built-in stereo effects. The keyboard is capable of 20 rhythms using 46 PCM sound sources and can generate 465 different sound combinations.

The keyboards work with any Kaypro computer equipped with a MIDI interface board. Casio, Inc., 570 Mt. Pleasant Ave., Dover, New

Jersey 07801; (201) 361-3819.

Hotline Number: 550-53

CP/M EMULATOR

If you are a former CP/M user who has made the transition to an MS-DOS machine, the CP/M Emulator by Dynacomp allows you to run your CP/M software. This program allows you to run both Z80- and 8080-based CP/M programs like Multiplan, CBASIC, and Microsoft Basic on an MS-DOS computer. CP/M files must be moved to an MS-DOS formatted disk before being read. Requires 256 KB RAM and MS-DOS 2.0 or higher.

\$24.95. All Kaypro MS-DOS and IBM compatible computers. Dynacomp, Inc., 17 Phillips Road, Webster, NY 14580; (716) 671-6160

Hotline Number: 551-53

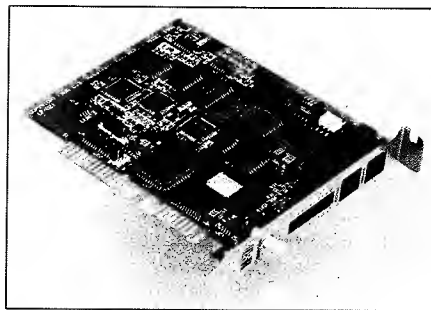
2400 BPS HALF-CARD INTERNAL MODEM

U.S. Robotics' new Courier 2400/PC internal modem is designed to fit any bus-compatible MS-DOS computer expansion slot, in addition to the PS/2, 25, and 30. The auto-answer, auto-dial, half-card internal modem uses the industry-standard "AT" modem command set for compatibility with all popular MS-DOS data communications software. The modem is signal-compatible with all CCITT V.22-bis modems at 2400 bps, and with Bell 212A- and 103- type modems at 1200 and 300 bps, respectively.

The courier 2400/PC includes two RJ11C phone jacks, externally accessible DIP programming switches, an RJ11C phone cord, an extensively documented and illustrated user's manual, a quick reference summary card, and an installation/configuration program on disk. The modem is available with HyperAccess (Hilgreave, Inc., Monroe, Michigan) data communications software for an additional \$100. The Courier 2400/PC also comes with a two-year parts and service warranty, which the user may extend indefinitely for \$7.50 per year.

\$549 (without software). All

Kaypro MS-DOS and IBM compatible computers. U.S. Robotics, 8100 North McCormick Blvd., Skokie, IL 60076; (312) 982-5010.



Hotline Number: 552-53

PERSONNEL POLICY SOFTWARE

Personnel Policy Expert software from KnowledgePoint allows busy employers to develop comprehensive personnel policies and compile them into a complete employee handbook with a minimum of effort. It's ideal for employers who don't have the time to write their own policy handbooks or for those who lack the extensive knowledge of complex labor laws that's required to develop an up-to-date employee program.

The program includes a built-in word processor that allows users to modify any policy statement to fit their exact needs. The program is fast and easy to learn, thanks to helpful menus that explain each step. In-depth background information on key issues is available by pressing a help key.

Personnel Policy Expert designs a custom program unique to each employer by asking the user a series of key questions similar to those that would be asked by a human resource specialist. Subjects covered include: worker's compensation, vacations, tardiness and absenteeism, maternity leave, reference checking and verification, and equal employment law. The program contains an extensive database that covers all areas of state and federal labor law, as well as proven management practices in widely varied work environments.

An update program is also available (for an additional annual fee)

that is designed to keep the employer up to date with the latest changes in labor law and most recent ideas in personnel policy development. The program requires 384 KB RAM, MS-DOS 2.11 or later, and a color or monochrome monitor.

\$495 (software only). \$95/year for optional update service. All Kaypro MS-DOS and IBM compatible computers. KnowledgePoint, 1311 Clegg St., Petaluma, CA 94952; (707) 762-0333.

Hotline Number: 553-53

VENTURA CONVERSION UTILITY

CPT EasyShare-Ventura allows desktop publishers to create and edit text with CPT word processing software and later transfer the text into a format that can be read by Ventura Publisher. In addition to the text of the original document, the formatting codes are transferred to Ventura as well.

EasyShare also gives CPT word processors the ability to construct a table where CPT font codes are made equivalent to Ventura Publisher tags. This eliminates the need for manually tagging files within Ventura Publisher. This system is especially effective for those who must produce technical documentation and other highly structured publications with well-defined style sheets.

\$150. All Kaypro MS-DOS and IBM compatible computers. CPT Corporation, 8100 Mitchell Rd., Minneapolis, Minnesota 55440; (612) 937-8000.

Hotline Number: 555-53

HAND-HELD BAR CODE READER

The PC-Wedge is a bar code reader that is connected between the keyboard and computer and enables MS-DOS computer owners to read four different bar code types (Code 39, Interleaved 2 of 5, Codabar, and UPC/EAN). No external power connection or special software is required to operate the unit.

PC-Wedge features a hand-held scanning wand slightly larger than a ball-point pen that is capable of reading in both directions. The system works with any PC, XT, AT, or compatible MS-DOS computer and can be installed in minutes without tools.



\$289. All Kaypro MS-DOS and IBM compatible computers. Time-Keeping Systems Inc., 12434 Cedar Road, Cleveland, OH, 44106; (216) 229-2579.

Hotline Number: 556-53

PRIVATE PILOT TEST SIMULATOR

Private Pilot Written Test Simulator is a tutorial that prepares you for the FAA private pilot's written test. Designed by pilots, this menu-driven software is easy to use and requires no previous computer experience.

The program contains over 50 high-quality screens and over 560 FAA questions. It includes several practice session modules that allow for rapid-fire "flash card" studying. During practice sessions, the user can select from any of the following subject areas: aerodynamics, airman's information manual, computations, sectional maps, weather, and federal aviation regulations.

In test simulator mode, the program constructs a sample FAA exam and, based on actual FAA standards, administers a timed test session. It then grades the finished test and prints out the final results for further study.

\$49.95. All Kaypro MS-DOS and IBM compatible computers.

Dynacomp, 178 Phillips Road, Webster, NY, 14580; (716) 265-4040.

Hotline Number: 557-53

GEM DRAWING TOOLS

GEM Artline gives the desktop publisher or professional illustrator a comprehensive and powerful set of drawing tools in one integrated package. Artline allows the user to trace scanned images from the screen or draw freehand designs.

Drawings and text can be extensively modified and enhanced: copied, scaled, colored, rotated, shadowed, and patterned. Images from many other popular painting and scanning packages can be imported for tracing.

The package includes GEM/3 system software and the Bitstream installation package for producing high-quality fonts. Artline is designed specifically for compatibility with popular PC-based desktop publishing applications and supports IMG, PCX, and TIFF graphics formats.

System requirements are 640K RAM, a hard disk, and a mouse or graphics sketchpad. A minimum of 512K expanded memory is required in addition to the above if Artline is to be used for image tracing.

\$495. All Kaypro MS-DOS and IBM compatible computers that meet the above specifications. Digital Research, Inc., Box DRI, Monterey, CA 93942; (408) 649-3986.

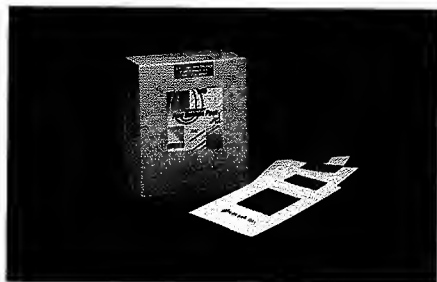
Hotline Number: 558-53

FONT SOLUTION PACK

SoftCraft, Inc., manufacturer of fonts and utilities for desktop publishing software and word processors, has released the Publisher's Font Solution Pack.

With the Solution Pack, desktop publishers can easily install soft fonts from any vendor and generate quality fonts in sizes from 3 to 120 points from the Bitstream outlines included in the package. Users can also add a variety of dazzling special effects such as drop shadows, con-

tours, outlines, shades, and patterns to existing soft fonts to produce eye-catching display and headline fonts.



The Font Solution Pack also includes a concise tutorial and complete reference manuals. The system is also available for Microsoft Word and Word Perfect and allows users of these word processing programs to create and install any font, symbol, or logo.

\$595. All Kaypro MS-DOS and IBM compatible computers. Soft-Craft, Inc., 16 North Carroll Street, Suite 500, Madison WI 53703; (800) 351-0500.

Hotline Number: 559-53

BETTER IDEAS IN CONNECTORS

The Robox series from Support Systems International provides a wide variety of ways to interconnect devices for personal computers and peripherals.

Robox Print Extenders increase the allowable distance between computers and parallel printers to over 100 feet.

Robox Gangboxes are three-way serial data switches that allow access to three different devices from a single serial port.

Robox X-Changer remote-control, cross-over data switches allow two computers to share two different printers and are especially recommended for use with laser printers.

Robox Convert and Revert units convert serial data to parallel data and vice-versa.

The Robox Multiscreen allows the display from one computer monitor to be re-displayed on up to three

PRODUCT UPDATES

Walonick Associates, publishers of StatPac Gold, a leading statistical analysis and forecasting package, has announced the release of Version 3.0. The update adds a variety of new and enhanced features to the package, including logistical regression and stepwise discriminant function analysis. In addition to these sophisticated features, StatPac Gold has incorporated an "Auto Help" feature, which makes it unnecessary for users to learn the system's command programming language. A system of windows now provides command selection and syntax. Nearly 100 other enhancements have been added, including the ability to read and write Lotus files, calculate from summary statistics, and perform multi-level sorts. Walonick Associates, Minneapolis, MN □ **North Winds**, a form processing software company, has announced a new service for printed form manufacturers. North Winds will produce inexpensive computer programs designed to fill in specific pre-printed paper forms. The software creates an image of the pre-printed form on the computer screen that can be filled in using a standard PC. Each product is specifically designed to the form manufacturer's specifications. The forms manufacturer then may offer the software to its customers under a private label. North Winds, Greensburg, PA □ **Digital Learning Systems** has announced a version of its KeyNotes AP Stylebook software for personal computer users. The

system is designed to run under Microsoft Windows and will give the user access to the complete style guide designed by one of the country's most respected press organizations. The KeyNotes AP Stylebook is designed to operate in conjunction with all popular word processors. It incorporates a wide variety of advanced features, such as multi-level indexing and hypertext functions designed specifically for the desk-top publisher. Digital Learning Systems, Parsippany, NJ □ Following its success with More Perfect, a collection of macros for Word Perfect 4.2, f/22 Press has introduced BetterYet, an entirely new collection of macros for Word Perfect 5.0. These macros use simple two-key commands to perform complex operations and are compatible with all earlier versions as well as Word Perfect 5.0. BetterYet is available on both 5.25- and 3.5-inch diskettes and can be ordered directly from the manufacturer. f/22 press, Leonia, NJ □ **CORE International** has announced a new revision of its award-winning tape backup software, COREfast. The new version, COREfast 2.0, offers the user two operating modes. For many users, the "easy" version will allow a complete backup-and-restore operation with only two keystrokes. Users with more sophisticated requirements will appreciate the advanced mode, which provides a host of powerful disk management utilities. CORE International, Boca Raton, FL. ■

remote monitors.

\$59.95 to \$179.95. All Kaypro MS-DOS and IBM compatible computers. Support Systems International Corporation, Department NS, 150 South Second St., Richmond, CA 94804; (415) 234-9090.

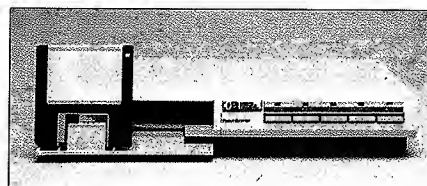
Hotline Number: 560-43

POWER DIRECTOR III

Sized to fit aesthetically between the monitor and computer, the Power Director III offers advanced surge suppression and power control. The unit incorporates integrated circuitry for high-speed transient voltage surge suppression, filtering of EMI and RFI interference, and overcurrent protection.

The Power Director III features a panel of push-button switches that

allow the user to individually control system peripherals from one convenient location. Other features include a built-in storage pocket and diskette stand for 3.5-inch diskettes and a static discharge nameplate for dissipation of harmful static electricity.



\$149.95. All Kaypro computers. Computer Accessories Corporation, 6610 Nancy Ridge Drive, San Diego, CA, 92121 (619); 457-5500.

Hotline Number: 554-53 ■

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How to Use the Buyer's Hotline

Each month you are exposed to several Kaypro-compatible products, both in advertising and editorial. Trying to figure out which product suits your needs and your pocketbook, is never easy. How many times do you wish you had more information on the products listed or advertised in *PROFILES*? Since we have received so many requests for information about products and companies mentioned in the magazine, we have initiated **The Buyer's Hotline**.

The Buyer's Hotline is a brand new service for *PROFILES* readers. Most reader services such as these require that the reader fill out a tedious "bingo" card and send it in, only to wait three months for a response. This time lag is usually the fault of the publication, not the advertiser. We are attempting to eliminate the time lag so you can get the information you need in a more timely manner. With one toll-free phone call, you will be able to get information on the products in each issue of *PROFILES* that interest you.

Here's how it works: Each product manufacturer or distributor will have a Hotline number. This month the numbers are listed next to the page number in the Advertiser's Index. In future months, the number will also be listed within the ad itself or the Quick Reference Summary at the end of each article. Make a note of which products (and the corresponding Hotline number) you would like more information about. Then simply call our toll-free Buyer's Hotline number (1-800-4KAYPRO). Give the operator the information she requests, and that's it!

Weekly reports of our readers' product information requests will be forwarded to the manufacturers and distributors, so that you can get the information quickly... and be able to make an informed buying decision within your own time frame. We sincerely hope that this service will be of great value to all of our readers.

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